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CHURCH OF THE HOLY SPIRIT, BANGALORE, INDIA

## Editorial

Throughout the United States Naval Hospital system, spread on Vicks, stretches a complex, physical landscape. It is a world of a solid sea in the form of the Royal Naval Medical School during a period of rapid change. No doubt many of us will look nostalgically for the inspiring splendours of high domes and the carriage to Grand Haymarket area which ended the rail ships of Nelson and the battle-steamers' careers of World War II but, as the Medical Officer-in-Charge points out in his article in this issue, the rigours are not shared by the medical and nursing staff in whom the new naval hospital is more relevant to the sleek and sophisticated ships of the modern navy.

The Navy may be smaller and various comments may be fewer, but the medical staff are more highly trained and naval hospital practice compares favourably, both in scope and content, with the best of hospital practice elsewhere. A block of the Royal Naval Hospital of Haslemere has recently been rebuilt to provide well appointed wards, intensive-care units, and patient amenities. Modernisation of the wards in the Royal Naval Hospital, Plymouth, has been undertaken in recent years and major redevelopment is planned while in Gibraltar the delightfully situated naval hospital with its superb operating theatre provides an enviable overseas convenience. At home the Institute of Naval Medicine re-ordinates the naval medical specialties of underwater medicine, industrial medicine, environmental health and infectious medicine. It sponsors research projects in clinical, environmental and industrial fields, houses the naval radiation protection service re-ordinates postgraduate medical education and provides training programmes in the environmental specialties. New buildings and available personnel will ensure a balanced, multidisciplinary hospital well suited to the needs of the Navy of tomorrow and in a of course, the sea-going Navy and its needs so which these services ought to be devoted. Left at sea continues to hold its attractions and the medical officer of a sea-going ship not only enjoys the changing colour, culture and climate of a foreign cruise but is challenged by new patterns of disease and the new responsibilities as a key member of the technological team, responsible for the problems of the modern warship.

The naval medical officer of today has absolutely good reasons to be confident of his future when there has never been greater rivalry in the clinical and technical fields. There is however a danger in being so confident with what is conventional to be prepared for fundamental alterations on command. Surgeon Captain T. L. Clarke who is well known for his original and challenging ideas on diet and disease, has therefore been asked to contribute to this number of the Journal. His views have aroused great interest and some controversy both in this country and in the United States of America where his books have been in great demand. The editors hope that Surgeon Captain Clarke's article will encourage other naval officers to contribute when our next journal should fully represent the interests and experiences of the far flung family of past and present naval doctors.

## Articles

### ACUTE INHALATION INJURY

By Ervin R. St. Hampton

#### ABSTRACT

A group of casualties from a major conflagration was exposed only to the inhalation of hot smoke and not to burning. The resulting respiratory syndrome was clinically identical to that experimentally reported in fire victims and often attributed to respiratory burns. Clinical and experimental evidence is reviewed supporting that thermal burns of the respiratory tract are unlikely to be encountered clinically, but that there is a distinct syndrome of acute respiratory injury from inhaled irritants, whose management demands the urgent use of steroids.

#### INTRODUCTION

There has long been discussion of the respiratory problems presenting in fire victims, and the etiology, pathology and management of these problems have been extensively argued because of their high mortality, often in persons who would not have been expected to die from their burns (Buckley and Brinkley 1943; Cox, Hering, Knapton and Fowler 1955; Phillips and Cope 1963; Reed and Camp 1969). In addition it has frequently been rightly said that the usual findings give no indication of how severe the respiratory complications will ultimately prove (Ash, Pichon and Ryan 1945; Stone, Martin, Corbett, Green, and Martin 1967a).

Descriptions of these respiratory aspects have regularly shown the same picture, with profound respiratory difficulty arising in addition to the bronchial level and conditions complicated by pulmonary edema, but more characteristic of all, showing a delayed onset with symptoms developing eight hours or more after the accident, and becoming progressively more severe, with a tendency to show acute exacerbations at 24-36 hours (Cox *et al.* 1955; Studd and Brink, 1960; Phillips, Turner and Cope 1965; Reed and Camp 1969). The majority of patients reported have been suffering primarily from burns, and the syndrome has usually been attributed to burns of the respiratory tract (Ash *et al.* 1945; Gasson, Wilton, de Gled, King, Bromberg and Karlson 1970) especially in patients with facial burns (Reed *et al.* 1967a; Stone, Martin and Clayton 1967b).

#### PATIENTS

As a result of an explosion and fire at one a number of men were trapped in smoke filled compartments for periods ranging from 5 to 30 minutes. None was burned or otherwise injured and following rescue all quickly recovered from their initial symptoms of cough and run, throat.

After approximately intervals ranging from 8 to 24 hours, 38 of these casualties developed a recurrence of respiratory symptoms of a sufficiently severe and progressive nature to warrant their admission to hospital.

The interval between exposure and admission ranged from 30 to 60 hours, and although their condition varied widely in severity all complained of increasing breathlessness, and cough with central chest pain and discomfort, and all were experiencing with considerable difficulty a clear mucous sputum which was pale grey and heavily soot laced. The worst affected

were severely breathless at rest with labored respirations and in particular prolonged expirations, with extensive wheezes and high pitched wheals, and with unrelieved flat expirations especially at the finish. The superficial appearance resembled profound status asthmaticus. In none was there any evidence of upper respiratory obstruction but two showed nasal obstruction.

The degree of clinical severity covered a wide range and could be classified as very severe in three cases, severe in three, moderately severe in eight and mild in six. The first group was listing the worst features as the rest but without dyspnea or prolonged expirations. Low fever and tachypnea were also found in all but the first affected but all patients were normotensive. No patient had trauma or other injuries and the only other clinical finding was mild conjunctival and pharyngeal injection in all patients.

Chest X rays showed changes in two cases only, where there was radiological evidence of early pulmonary edema. All but the most mild cases showed a polymorph leucocytosis and 1:500 elevated to 15 to 20 times. Standard blood biochemistry parameters were normal but blood gas analysis was not available.

The situation was therefore one in which there was evidence of a large, tracheo-bronchitis, from related asthma with airway obstruction at the bronchial level. This arose partly from the manifest obstructive reaction with vocal signs and it is likely that the hypersecretion and edema of the inflammatory response were also contributing to narrowing of the bronchial lumen. The relative importance of bronchospasm as such in this situation was difficult to judge. It appeared to be possible to reappreciate clinically that when there is some partial or narrowing of the bronchial lumen from related causes, the deterioration of that part attributable to bronchospasm is not clinically possible. Finally if there was also infection already there was clearly danger thereof.

Upon that assessment the following lines of management was decided:

- (1) Intramuscular Hydrocortisone 100mg at once followed by oral Prednisone 30mg six hourly.
- (2) Intramuscular Ampicillin 500mg at once followed by oral Ampicillin 500mg six hourly.
- (3) Intravenous chlorpheniramine.
- (4) Oxygen by face mask in the presence of current apnoea.
- (5) Bronchodilators, such as oral Ephedrine or intravenous, Isoprophylline according to need.
- (6) Additional intravenous Hydrocortisone 100mg if the response so demanded.
- (7) No sedation in the acute period.

This was, intended in all but the at least severely affected situations in which it could be not controls and provided that what occurred all other measures.

#### RESULTS

Progress was closely watched in some cases with oxygen. During the first eight hours the only clinical change was slight deterioration in two patients, but after 12 hours it became clear that all were beginning to improve. A reduction in the volume of the sputum was associated with an increasing rate of expiration and decreasing inspirations of labored character and this process proved to be progressive. In no case was oxygen required after the first 16 hours and in all cases it appeared had stopped by the fourth day. Subsequent management varied somewhat according to initial severity and rate of improvement, but reduction of oxygen dosage was started in the first 24 hours and the patient was discharged in between five and eight days in all cases. Ampicillin was continued for rather less in some cases.

This patient developed bronchopneumonia after withdrawal of steroids and responded to 100 mg. hydrocortisone in three days of ACTH but in other cases progress on hospital was unremarkable 2 to 4 days were, however, seen to resolve and no steroid course alone proved for eight days. In the most severe cases expectoration of grey sputum continued at significant quantities for up to 10 days, but in no case did sputum cultures yield pathogens. Cough and especially hoarseness were the dominant of all in clear. In first cases hoarseness resolved daily in about eight suddenly and laryngoscopy showed in one of these some oedema of the vocal folds and in the other what appeared to have been a small haemorrhage over the same site. In the two patients showing radiological changes the appearances reverted to normal in three and six days respectively. In one adult patient did chest X rays show any abnormality at any stage although all patients were X-rayed at least twice including on admission. The duration of stay in hospital ranged from 5 to 18 days.

The relationship could be found between the severity or duration of symptoms and the patient's age, previous chest history or duration of exposure to smoke.

#### DISCUSSION

The importance of this group of patients lies in the fact that they were all workers of a major firm and all suffered the severe effects of the substances of the smoke without being burned and that the question of thermal burns of the respiratory tract does not therefore arise. None of them they showed the characteristic late onset respiratory syndrome as often described in burned patients.

The place of related events in the aetiology of this syndrome has previously been reviewed by these authors (Bloom and Smith, 1946; Phillips et al. 1945; Taylor and Gombert 1945; Williams-Lee 1947; Reed and Camp 1949). Particularly stressing in the account by Cox et al. (1955) of the Collingwood Wharfedale fire which resulted in the death of 13 of 15 babies, only one death being from burns. Three of the others died rapidly in acute respiratory embarrassment but the remainder were usually well without significant burns and only after 12 hours did they develop respiratory distress with progressive bronchial obstruction which only two survived.

Idiopathic syndrome with characteristic delayed onset have also been described after exposure to certain gases such as ammonia (Gray, Christie, Lister and Henderson 1941) and other related irritants (Conner, Delfon and Conner 1952) after the inhalation of gas (Lund and Friberg-Kronman 1949) and in Mendelsohn's syndrome (Mendelsohn 1945) following the aspiration of oral gastric contents.

It is significant that similar pathology has been described in all of these various circumstances. The trachea and bronchi show intense hyperaemia and oedema in the sub-mucosal layer with varying degrees of minimal necrosis with a heavy cellular and highly fibrous reaction. In short a delayed inflammatory response. The consequence a progressive obstruction of the respiratory passages involved. Pulmonary oedema may also occur in the acute severe cases.

That the syndrome should still be attributed to respiratory burns is surprising not only because of the clinical evidence accompanying related symptoms but also because of the experimental evidence accumulating since 1945. It has proved very difficult to induce respiratory burns on animals except by introducing hot gases directly into the trachea under positive pressure through a tracheostomy (Steen et al. 1947a; Morris, Hargreaves and McLean 1949). When the animal breathes the gases spontaneously through the nostrils the striking features are the profound and abrupt fall in temperature of the gas as it passes down the respiratory

tract, and the failure to reflect respiratory burns unless nasal gas temperatures of above 50°C are used (Selman *et al.* 1983, Kerkvliet 1984), although the burns can be produced very much more easily. Thus clear experimental proof that the respiratory tract is far more resistant to burning by dry heat than it is the skin, deserves emphasis. Conversely, when exposed to cold or containing smoke, smoke inhalation characterizes late development of severe tracheo-broncho (Madd and Brown, 1961, Kerkvliet 1984) and this reaction is even more marked if the air is both hot and sooty.

If as patients temperatures elevated heat does damage the respiratory tract the region exposed to the highest temperatures is the pharynx and larynx, and any burns are more severe at these sites. The consequent pharyngeal and laryngeal oedema causes death from respiratory obstruction (Morris *et al.* 1941, Reed and Clegg 1968) and it does so with such speed that for victims so affected would be highly unlikely to reach medical care alive. It is unlikely therefore that the respiratory, or indeed similar diseases in its any circumstances situated able previously to thermal burning of the respiratory tract.

The hazards of this condition are progressive bronchial obstruction, pulmonary oedema which complicates the most severe cases, and secondary respiratory infection which has proved a particularly potent danger in burned patients. It is noteworthy that both pulmonary oedema and infection have been much commoner in patients subjected to tracheotomy (Sims *et al.* 1976). However, it is particularly relevant to note that in patients who have survived all of these hazards no permanent respiratory damage or long term impairment of respiratory function has been found (Cin *et al.* 1958, Conner *et al.* 1961, Figueroa and Usher, 1963, Levy *et al.* 1984). It should therefore be emphasized that there is no acute life-threatening condition in which, if death is averted, recovery is complete.

The management of the acute phase is consequently of great importance. The therapist used is to interfere to limit excessive inflammatory response to a chemical stimulus which leads to bronchial obstruction. The anti-inflammatory properties of steroids need not be overestimated as length, but in the context Spence's summary (1971) is apt. The administration of Corticosteroids results in marked suppression of the acute inflammatory response to all agents and generally reduces the amount of oedema and hyperaemia and the quantity of fibrinous exudate.

In addition to their well known anti-inflammatory properties, and to their therapeutic effect on bronchospasm which may be a secondary consequence of bronchial constriction, further experimental evidence that steroids inhibit protection on the cell membrane against critical chemicals (Spence 1971, Fairfield 1963) thereby reducing the cellular damage which itself contributes to initiating the inflammatory response. They also reduce capillary permeability (Baker 1952) which is relevant if there is threat of pulmonary oedema. To arrest the inflammatory process in such circumstances will, of course, require large doses of not less than 100mg of Hydrocortisone four hourly, as there is evidence that the dose required to quell an inflammatory response is proportional to the severity of the inflammatory stimulus (Spence 1973).

The most obvious danger of steroid therapy is that of increasing the predisposition to infection, and it must be obligatory in these circumstances to use a prophylactic antibiotic immediately on starting steroids, with early adequate blood levels being ensured by the parenteral route initially. However, the danger can be minimized by appropriate timing. The requirement is for high doses of steroids as early as possible and as briefly as possible, since the earlier treatment starts the greater the possibilities of preventing or reducing the inflammatory response. Moreover the danger of the initial response to acute inhalation injury appears to

1), passed when approximately three days have elapsed from exposure. With such a short latency, caused by an absence of predisposing or a fulminating chest infection is remote. There is no evidence that any chest complications are likely to be generated by such a short course of steroids and it appears that the lungs which have been exposed in this regard to prednisolone (Coomes *et al.* 1962; Saxon *et al.* 1967a).

The clinical evidence in support of this argument is circumstantial. The possible value of the form of management has frequently been discussed (Cox *et al.* 1955; Coomes *et al.* 1962; Saxon *et al.* 1967a; Reed and Chung, 1969). Reports of an accelerated rate in acute inhalation injury (Lavy *et al.* 1964; Saxon *et al.* 1967a; Reed and Coomes 1970) share the same defect in the present context, namely a lack of steroids, and the argument that results might have been equally satisfactory without steroids cannot be disproved. The argument is nonetheless vitiated on the grounds already set out. It might be suggested that an opportunity should be taken in early and a properly controlled trial. However it must be explained that this is an acute life threatening condition in which death is averted, recovery is complete, and there seems no justification for withholding that treatment which is indicated by considerations of pathology and pharmacology and which is known to be associated with survival.

#### CONCLUSION

It is suggested that in the case of patients exposed to the danger of acute inhalation injury of any kind, whether or not they are also burned, the first requirement is to remove vigilance from the manifestations of inhalation injury are usually considerably delayed.

Secondly that if evidence of the respiratory syndrome appears, steroids should be administered forthwith in substantial doses with a varying schedule.

Thirdly that whilst exposure to inhalation injury is known to have been severe, steroids should be used immediately without awaiting the development of respiratory distress.

It is indebted to Surgeon Captain E. M. Cliff, Royal Navy for his constant encouragement and advice during the preparation of this paper.

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## THE CONCEPTION OF THE SACCHARINE DISEASE? AN OUTLINE

By E. L. Claus

### SUMMARY

The presentation and review of all manifestations of the saccharine disease lie in a mode of nutrition which excludes the pursuit of natural instincts in the consumption of natural foods. The repair of damage already sustained may, however, require further measures.

In a paper in 1934 (Claus, 1934), I advanced the hypothesis that many if not most of the modern degenerative diseases could be ascribed to a single cause—the striking of carbohydrate and especially the refining of sugar, with its enormous subsequent rise in consumption over a century and a half. The conditions and their modes of production were set out and in a later work on paper were classified (Claus, 1945). The widest domain of which they were considered the manifestations was termed the *Saccharine Disease*.

It is true that in the production of this disease I unquestionably include the refining of starch, as in the refining of wheat grains and in the tropical of manioc, but it stands mainly such up in the body as glucose, the term *saccharine disease* cannot more convenient than become alternative. It will do so.

The main conditions may be classified according to their modes of production, as follows:

#### From over-consumption

Dietetic obesity, coronary thrombosis and primary Bock infections (hypercholesterolemia, etc.)

#### From the removal of fibre

Dental caries and periodontal disease, colonic stasis, with its complications of various forms, diverticulitis and haemorrhoids and, as stated in a later part of work (Claus-Campbell and Farmer, 1954), diverticulosis preceding diverticulitis.

#### From the removal of protein

Protein-starvation

It is particularly to be noted that the consumption of carbohydrates has been produced, not by the removal of water, but by the removal of fibre (and of protein) so that conditions produced by over-consumption automatically predispose to conditions produced by the removal of fibre (and of protein). For this reason, the English term, 'saccharine disease', which is really only applicable to the first group, is not as suitable as it appears and the convenient measure. It is also a fact that the conditions all arise from attempts to consume the main nutrients as carbohydrate foods and reject the accompanying fibre.

Reference was also made to conditions such as renal calculus resulting from the altered nature of the urine and I have no doubt whatever that as soon as some other conditions will be added as their work with the saccharine disease is established.

\*The word *saccharine* (public Enemy No. 1) and *saccharine* (saccharine) is pronounced like the word *blame*, its origin is also far from the chemical structure I mean related to sugar!

## HEREDITARY DEFECTS AND INDIVIDUAL BODY BUILD

After many centuries of years of evolutionary adaptation, individuals of the human body in the above conditions is considered to be due to exposing it to one or more new environmental factors, to which it cannot yet possibly be adapted. In short, the body in these conditions is crisscrossed in both rigidity and used strength—or rather, plane released by its sleep.

It is true that exposure to the body being built constantly over as the case of congenital defects such as hemiplegia, but such defects never exceed the figure of 5 per 1,000 births (Kerny and Lewis, 1952). A frequency only one twentieth of many of the conditions mentioned above. The great difference demonstrates the weakness in working, such conditions to congenital defect, particularly in view of their very recent appearance in the female and their rarity in those still living under primitive conditions.

At this point must be considered the totally different question of an individual's build which may render him highly vulnerable to some new environmental factor. Variations in personal build, which involve every structure of the body, readily explain why certain persons may suffer from a disease produced by a new environmental factor whereas others persons do not. For example, as regards various rums, which the present concept accords no priority on the internal sleep, was to an essentially limited extent from a relaxed state (Claver, 1955), the relationship of one man's color to the skin rums may be quite different from another's and thus his vulnerability in this respect may be quite different, too. There is a fundamental difference between disease produced in a perfectly healthy build that happens to be vulnerable to a new factor in the environment and disease based on congenital defect. The difference is crucial because on the one hand the cause of the disease can be removed at once, whereas on the other the cause can never be removed, though it may be removed. For this reason I prefer the term personal build to genetic susceptibility, which latter term creates an atmosphere of defect with it.

It can therefore be seen that hereditary features or disease can be deceptive. For personal build is just as hereditary as congenital defect. A tall man killed by mustard gas fire in World War I could have had a tall son killed by mustard gas fire in World War II. It is therefore necessary to distinguish the hereditary features or disease which concern vulnerable personal build from those associated with congenital defects. For as the former heredity can be totally disregarded. As the present time much time and energy are being devoted to hereditary features when it would serve far more to regard the body as built rigidly but as being used weakly, and due to removing the major or controlling factor from the environment, I make no apology for using plain rather than scientific, English.

## THE BEETING OF CARBOHYDRATES

Again the most essential background data is now presented to outline the new environmental factor constituted by the refining of flour and sugar and Figure 1 summarizes the position as regards both white and brown sugar.

It will be seen that the 15 lb. of sugar (sucrose) per head per year in 1913 has increased eight-fold to only 125 years on the 120 lb. in 1950. The latter figure equals a daily consumption of about 3 oz per person, which is the amount of sugar contained in some 2½ lb. of sugar beet. It is this enormous concentration in the sugar, through which 2½ lb. of sugar beet bears on 1 lb. or just 5 oz. of refined sugar, which exemplifies the new environmental factor, namely disease, and which, decreasing both appetite and energy, renders working increments in some respects, for when the same diet could replace his sugar (in about 2½ lb. of sugar beet).<sup>2</sup>

Turning now to the case of *flour*—the refining of wheat, which dates on a modern scale from only about 200 years ago, results in approximately one-third of the grain being stripped off and discarded. For this there is the whole contents of the pericarp and nearly all the fibre. The concentration food and is less than in the case of sugar, but a nevertheless easily provided in the eating, whereas the average solid wholemeal bread with puff-y wheat bread is so true that there has been a fall in bread consumption in recent years, but this is largely due to the more refined type of sugar consumption and does not alter the fact that present bread consumption is greater than it would be if the missing third of the bread were eaten and so the bread than is still eaten.

The various consumptions of refined wheat and other grains are perhaps more clearly seen in the East, say in the case of India, where the consumption of polished rice is not accompanied by any large consumption of sugar, but it can also be revealed in the country by the gradual sharpening of the dental formulae when the removed fibre is removed to the diet of wheat more later. Now the starch in wheat flour is digested and absorbed largely as glucose. The same is largely true of the ordinary wheat and brown sugar sold in grocers, although slight qualitative differences from starch being natural, need not detain us in this matter, but the qualitative differences are important. Our sugar having been rendered more or less refined then, the starch and brown sugar will more dangerous. With the significant process, therefore, no great difference will be made here between the consumption of refined (white) flour and refined sugar, as regards their effects upon the human body.

#### Notes

Lastly, the various consumptions of cereals still very little with the consumption. It is true that some cereals such as wheat and vegetable oils have been concentrated by man so much the entire initial as from the carbohydrate, but the concentration here never seems to decrease either

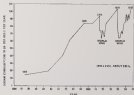


Fig. 1. The rise in sugar consumption in the United Kingdom over the last century and a half (taken from information kindly supplied by Professor H. Cox and the Board of Trade Analysts).

the appetite or satiety. I believe the reason for this is that such fats do not really fit into the concept of the consumption as many use and live. For example, whereas butter and margarine contain about 82 per cent of fat (the paraffinous fat part) in cream and cheap confection more 99 per cent of fat. The Lush Sprites of this world who desire no fat and those women who desire a great deal of fat can therefore still follow their natural instincts effectively today. In close accord with this, the interest in fat consumption as noted items has been only a small fraction, of the interest in sugar consumption noted above (Nasser, Othman and Hodge, 1964; Michaels, 1964).

And to maintain that saturated animal fat, such as occurs in butter and in our stored body fat, are bad for us, whereas unsaturated fat, like cod-liver-oil, is good for us would make of us, tentatively and thus, but a flock of generalizers—and it is not surprising that no thought has ever been passed to follow the natural plans of the gods, for the obvious. In addition, vitamins in levels of the blood lipids, of which so much has been made, are well conserved today as being related to carbohydrate consumption as well as to fat consumption.

We now pass to the study of the conditions themselves, as set out in the above list, providing this time, in continued sequence.

#### THE MANIFESTATIONS OF THE SACCCHARINE DISEASE

##### Dental Conditions

Starting in the mouth the loss of the cleansing power of the fibre as simplified carbohydrates in the teeth and the loss of the stimulating power of the fibre on the gums, is not well known in the domestic doctor or dental surgery, and in the equally serious periodontal disease (pyorrhea) is not much discussed here. Reference, however, may be made to the late Professor A. B. MacGillivray's society in Othman in 1964, which showed how drastic the incidence of these conditions caused with the decrease of the diet from unsalted to refined carbohydrates, and in Professor J. L. Hardwick's work (1965) showing how the rate of cancer rate over the century has accompanied the refining of flour and later the refining of sugar also.

##### Peptic Ulcer

Turning now to the next site of impact of these refined carbohydrates, the stomach, I have with much to be summarized a large mass of evidence demonstrating these links in the essential areas of protein and dandruff ulcer (Clouse, 1962) in that work I report unequivocally that the cause of these conditions may lie in the body when through, and usually in minimal deficiency, and I have stated that the cause lies essentially in the partial or complete removal of the protein component of carbohydrate foods. Protein, be it remembered, is the only food material that neutralizes the gastric acid and in the refining of carbohydrates the protein is removed to an extent that is not from 12 per cent to the refining of wheat to 100 per cent in the refining of sugar beet or sugar cane. The resulting loss of buffering power has been measured (Flory, 1961) and the consequent faster climb in the acid curve in two weeks has already been demonstrated in the case of refined grain (Lamond Jones, Fletcher and Shaw, 1966). Further, since the stomach requires continuously during the whole post prandial period, such relatively undiluted acid within the duodenum, too, right from the start.

In conformity with this, I seek to show that the epidemiological disturbance of peptic ulcer throughout the world severely parallels the consumption of refined carbohydrates. Thus the disease reflects almost long human habitation in far all national purposes unknown amongst the natives of unrefined meals in Mother's Nigeria and of not slowly refined stuff in

Europe, and also amongst the natives of mainland Asia, as in the Zulu and Basuto of South Africa. In the latter part of Africa, for example, Barker from the Charles Johnson Memorial Hospital reports two cases of jejunal ulcer in 25 000 consecutive hospital visits. Yet amongst the natives of these African tribes the negroes in the United States, who are on a refined Westernized diet, the incidence of jejunal ulcer is the same as in the white population, while in many tribes in Africa, such as Herero, ulceration is now common. Following the ever increasing consumption of refined flour and sugar.

Corresponding to the picture in Africa is the ulcer belt of India, but here the refined rather than the coarsely milled rice and maize (jowari) is also shown that in the Japanese prisoners-of-war camps jejunal ulcer was either rampant or absent, depending on whether the rice consumed was refined or unrefined, and it also drew attention to the well-documented disappearance of jejunal ulcer from the German army hospital at Salsburg, where the turbo hydrolysates contained because of the refined type.

Historically also, the very high incidence of jejunal ulcer, especially duodenal ulcer, in Westernized nations, that appeared relatively recently around the turn of the present century fits in well with the rise in sugar consumption which reached the high figure of 35 lb above that time.

It will be noted that, quite apart from evolutionary considerations, none of the above evidence is compatible with sugar being a primary cause of jejunal ulceration, though it is shown that stress can aggravate matters by leading people to eat when they do not feel like eating. The ill effects of the latter act, including the oral anaemias to which it gives rise, are also related to by me in the later part of work (Chown et al. 1949) when discussing the aetiology of haemolytic jaundice.

#### **Celiac Disease with Dermatitis Glutinis and Vitamin Deficiency**

Turning now to the intestine, the last site of action of celiac disease, and designed by the the natives their absorption themselves, the loss of their resistance during refining processes has important consequences on the intestinal transmisses, which become very greatly lengthened, the food changing from a soft nutrient and to hard breaded masses. The result of this was, especially celiac disease is shown by the vast consumption of opiate in Westernized nations like Great Britain, where from 15 to 30 per cent (Marras 1945, Connell 1946, Irving, Leonard-Jones and Wynne, 1947) or more, of all persons take them regularly. The striking against effect of taking raw, unprocessed bran shows how precisely the loss of the material on which flour bases on the old and the refined, who often have neither the money nor the energy to forage for other fibre-containing foods.

I repeat not only that celiac disease is responsible for dermatitis, but the causation of dermatitis, which now runs partly on the absence of the condition in consumers substituting an unrefined carbohydrate, and partly on the critical neuro-endocrine picture studied by Forster (1944) in relation to the later part work (Chown et al. 1949) but also that such states in the dominant cause of various virus and fungal dermatoses (Chown, 1950, Chown et al. 1950). For the thin skin, and the removal of all dandruff, has considerably over the material that runs carrying blood from the lower limbs (Fig 7). Since the vitaminous relationship is clear in the left side, especially in the recurrent poisons, the greater frequency of such various disorders on the left side is explained, and without making the body the cause.

However the main strength of the argument lies in the fact that, in men living on unrefined carbohydrates, various virus and fungal dermatoses are almost unknown (Dodd (1944) quotes figures supplied by Parker (1944), from a hospital serving a population of Africans

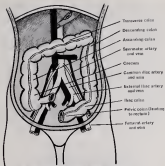


Fig. 1. The abdominal cavity (dissection from the left to the right). (Reprinted from Adams, 1967, on request from Dr. J. F. Adams, London, A. J. H. & Son, Ltd.)

living wholly within the abdominal cavity, but give a CHROMIUM CLOUTIER not at all apparent and further in 2 instances a. a day, and in 3 years, out of a total of over 11 000 inguinals (including over 1 000 maternally caused) and over 100 000 inguinal operations, there were three cases of varicose veins and three cases of femoral thromboses. In Great Britain varicose veins form the commonest surgical complaint, some 10 per cent of the population being afflicted with them, and post-operative and other cases of femoral thromboses are especially frequent and here, here rapidly increasing (Morrell, Trumble and Barr, 1964).

A similar argument readily explains the production of haemorrhoids and varicose: the only difference being that in the former the dilatations give no vents within the bowel running in the walls of the intestine, instead of on veins within (Fig. 1). These two complaints are also exceedingly common in Westernised countries, but in the demands of Africa as to which reference has just been made, they occurred once and three times respectively.

Finally, any racial similarity to such vascular conditions may be ruled out. For the negroes in the United States suffer from them just as much as the whites.

#### **Over-consumption of foods rich in sugar**

The over-consumption that comes with refined carbohydrates has a profound effect on the hormonal flow pattern in the body. To take the simplest example, the needs of lipoidal cells are not in tune with the  $\beta$  cells predominant and small like found in the cow, whereas those of infants fed on artificial milks, often containing heavy loads of sucrose are also in tune with the  $\beta$  cells predominant and with the small "pottery" (Nath 1948; Ellis 1948; Kaplan 1949). Since the food surplus in the gut is essentially carbohydrate it is natural the resulting excess favours the multiplication of sugar-loving organisms like the  $\beta$  cells. The metabolic concept therefore regards over-consumption of refined carbohydrates as the fundamental cause of diabetes, appendicitis, and primary protein and symptomatic leucocytes. Furthermore, the absorption into the bloodstream of the products of bacterial decomposition is regarded as the essential cause of the vascular toxicity so strongly hinted at for past by Eberle's studies, which may include skin diseases such as acne of the chronic eczema and urticaria, and perhaps even hypertension.

All epidemiological evidence shows the rarity of  $\beta$  cells infection in communities such as tribal Africans still living on unrefined carbohydrates, while their cousins in the United States show no such freedom. There is also the historical evidence. For example, Ellis Smith (1954) has shown how closely the rise in the incidence of appendicitis has paralleled the rise in sugar consumption.

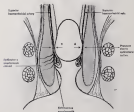


FIG. 1. A Superior disaccharidase-deficient with normal colon. B Superior disaccharidase-deficient with hyperplasia of mucosal folds and resulting in greatly distended colon. (Reproduced with permission of the Publisher from Ellis Smith 1954.)



### **Over-consumption: Obesity**

Dealing further with the over-consumption attending refined carbohydrates, let us transferring our attention now to the blood stream into which most of this surplus, as sugar, is absorbed. It is easy to see its relation to obesity. Indeed the modern conception indicates that the over-consumption of refined carbohydrates is the essential cause of the epidemic here so common in Westernized countries that even children are afflicted with it. There is repeated say also that the appetite is at fault, which would imply that the body is fed wrongly and the consequent absence of obesity in all wild animals, birds and fishes strongly reinforces this opinion. There is also repeated say also that excess of some over-stimulant, such as tobacco, acts as a flush and a visit to any one regularly replaces this opinion, for even interference with desired stimulus does not appear to prevent obesity so long as the food remains as an natural, unconcentrated state.

From the foregoing it is clear that reduction in obesity lies basically in taking natural fed raw foods in their natural unconcentrated state, including the original fibre and not in exclusionary restriction. At first sight a sweet liquid is not out things colorfully. Thus, if the 3 oz. of sugar now consumed by the average person per day in Westernized societies is contained in some 24 lb. of sugar beet, it would appear to make no difference colorfully whether one consumes the former or the latter. But this entirely ignores the all important factors of appetite and satiety. It is easy enough to take down the 3 oz. of sugar in cups of tea or in cereals, but taking down 24 lb. of sugar beet or the equivalent amount of raw fruit, such as a dozen apples of our past temperance climate is a very different affair, similarly with jelly which, based on sparse dense wholemeal bread, will usually result in a relief as a whole field of peas, even one too much, it knows nothing about colours, but appetite and satiety acting on unconcentrated carbohydrates protect it reliably. Our concentrated carbohydrates do not protect us.

### **Over-consumption: Diabetes and Coronary Disease**

Finally, the modern concept advocates refined carbohydrates as the essential cause of diabetes, through the abnormal stress imposed on the pancreas, and because of the striking change associated with coronary disease, probably the essential cause of coronary disease, too.

In his original paper the present writer tried to show how the difficulties in relating diabetes to carbohydrate consumption disappear if the relationship is made only with the uncooked, refined carbohydrates. Thus, during the last war the mortality from diabetes fell sharply though total carbohydrate consumption rose, but the consumption of refined carbohydrates through the refining of sugar and cereals fell sharply too.

Quite apart from the historical evidence showing the increasing incidence of diabetes and coronary disease following on the rise of refined sugar consumption, as well pointed by Michaels (1955) in the case of coronary disease, and more recently, in the matter of the new factor, by Campbell (1959, 1960, 1963) in the case of diabetes, there is a mass of epidemiological evidence too.

That is most strikingly seen in the 250 000 Indians now living in Natal, amongst whom Campbell (1964) has shown that, though most of the life spanned are now under a very large increase in sugar consumption has occurred as compared with that in India, and this has been accompanied by a variable explosion in the incidence of diabetes and also of coronary disease. This together with similar evidence in Alaska during their transition from total to advanced civilization, forms the basis of our past work (Clark *et al.* 1966).

commonest, the great rarity of these two diseases in tribal Africans contrasts remarkably with their rapid prevalence in the US Negroes and the US Whites.

Historically, from the point of view of the nutritional concept, for the most important of these investigators has been not showing the almost complete absence of diabetes in 2 000 African populations. These nations share the same climate all day long and their consumption of sugar is therefore enormous—but the sugar is nearly all in its natural dietary form. In the opinion of the writer the investigation is of supreme importance and presents a lasting challenge to those who do not differentiate the ecological cultural carbohydrate from the natural natural state.

#### Natural and Refined Foods

To prevent for a moment the subject of coronary disease, and its prevention thereof by the taking of unsaturated vegetable oils like cod-liver oil, instead of saturated fat like butter, cream and the fat on meat, it is pointed out the present rapid frequency of this disease is a relatively new development in man's history, having occurred approximately over the last fifty years. Where, then, is the logic in treating the old-fashioned fats, to which we are evolved and which we love, and taking instead the new fish-liver oils, to which we are not evolved and which mostly we do not love? Thus, about some 1 000 years ago, stated in Genesis, Ch. 12, verse 14, about Abraham gave to his people to eat "bread of wheat and milk of sheep" with fat of lambs.\* This practice extends much further back than this, as Mesopotamian man, to wit, the Sumerians used oil as largely saturated these days, extracted from a plant that comes from the New World, which we and others, who spring from the Old World never man used usually. Moreover, in the past, most vegetable oils cooked unadorned have been consumed, as such, so that their extraction required the invention of the modern hydraulic press. The fact that many of these oils are thus not natural foods for man leads some credulity to recent reports from the United States of increased malignant disease in those constantly taking them. For contrast, it is easy to relate the disease to the present use of sugar consumption already stated. In brief, in the latter, making out the above argument, the present writer also pointed out that diseases associated with coronary disease, such as diabetes and obesity, can easily be explained by the taking of refined carbohydrates, but not of fat.

Any theory, however, trying to relate coronary thrombosis to the consumption of refined carbohydrates should include all refined carbohydrates, since all are absorbed as glucose, whether sugar from the intestine, or from the glucose sugar of the blood. It would be nearly by complete serious error to record sugar consumption without reference, for man (plus the animals concerned in food) since great numbers of people prefer butter to sweetenings yet both are equally capable of causing obesity and other ailments. (Lancet 1971, 1: 43)

#### Blood Sugar

It is the end of the refined-carbohydrate story.<sup>4</sup> The answer, unfortunately is that it is not. For the essential fate of these carbohydrates in the body has still to be considered. At first sight, this would appear to be at the harmful conversion of sugar into carbon dioxide and water. But a more critical study reveals that the ingestion is by no means so easy as that. To give the simplest example, if sugar were taken in its natural unrefined state it would very commonly be taken as raw fruit, and nearly all fruits, especially the more acid ones like apples and oranges, have a glucose effect on the urine. This is due to the elimination of acid groups at carbon dioxide in the lungs, but the oxidation of alkaline groups in the urine. In the

\*Quoted in the Bible, reference to the giving of fat, cream and blood (these offerings were in fact the fat was needed to preserve the products) included.

consumption of refined sugar decreases, the circulating blood is freed from its excess sugar. And this has a direct effect on the formation of renal calculi, i.e., the precipitation of uric acid and oxalate deposits, thus upon the acidity of the urine, thus on almost everything else. Looking at the picture broadly and observing the widespread effects of these refined carbohydrates on the body, a wonder would be conceivable if they did not play their full influence upon the end results of metabolism in the urine.

Thus the correspondence of surface carbohydrates is only tentatively linked to the formation of a renal calculus is strongly supported by both historical and epidemiological evidence. As regards the former there is no suggestion of any mechanistic considerations. The big rise in the incidence described on European immigrants at the same way (Galleries 1909) of which Anderson (1961) has recently produced a striking example at the cost of Norway where the conditions both tend to favour the commonest bacterial (collegit) cholelithiasis. And as for the epidemiological evidence there is the well-known, many of the population in Africa, living initially on a very hard carbohydrate, with yet again the equal incidence to the U.S. Negroes and 10, 90%.

[illegible]

The presentation and extent of all manifestations of the northwestern disease lie in a wide of spectrum which includes the period of natural infestation in the consumption of natural foods, and a practical food poison appears on the fourth month. The degree of damage already has been very low, however, because further measures

In complexity, a policy is assumed to generate complexity in seeking the correction of the modern development dilemma. It is not wise to utilize the temporal East-West comparison by the Clinton and endorsed view, since that simplicity holds the key to truth.<sup>1</sup>

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## MANAGEMENT OF LARGE CIRCUMFERENTIAL BURNS

By J. Sharon Stahler and James Watt

## SUMMARY

Major circumferential burns in naval hospitals and ships are best treated by exposure. Attempts to achieve an early biological seal are frequently defeated by the difficulties of maintaining a clean, dry surface on nonflashing burns. The principles underlying modern efforts to overcome this problem are described together with the results of tests carried out at the Institute of Naval Medicine on a new flame-resistant, warm-air tent.

## Introduction

Explosions and fires on ships have always been a hazard to the welfare and the main pursuit of boats in the face of prime concern to the naval surgeon who today is frequently called upon to attend the injured either on board his own vessel or some headquarters within helicopter range. While the initial resuscitative treatment remains the responsibility of the ship's medical officer or surgical team, the long-term management is in the hands of the surgeon in the naval hospital to which the patient is transferred.

Since these injuries usually occur in young, fit men, burns of limited extent (under 50 per cent of the total body surface) generally do well whatever the current scope or fluid replacement formulae or the nature of the local treatment, provided that a clean regimen is established in accordance with modern surgical principles of management of the burn wound. However, more extensive burns and particularly circumferential burns of the limbs which bind themselves as well as the exposure treatment advocated by Wallace (1949, 1954) are difficult to handle.

The advantages claimed for the exposure treatment are that rapid drying of the burned area with early formation of a crustum prevents fluid and protein loss, controls body temperature and prevents a biological seal preventing surface infection. It will be apparent that these advantages are realized when evaporation is prevented because the patient is lying on a large area of the total burned surface and that the risk of infection increases in proportion to the difficulties encountered in turning the patient and access to the burn wound.

The exposure method of treatment is particularly applicable to the management of large circumferential limb burns in the in conditional patient accommodations of aircraft carriers and naval hospitals abroad and since Wallace pioneered modern exposure treatment, attempts have been made to maintain the aim of drying of the burned tissue, maintain the risk of surface infection, facilitate turning of the patient and prevent pathological pressure upon the burned surface.

## Moist frames

Cross (1957, 1964) has described the Radhacon nylon mesh frame (Fig. 1) over which he now places a stretched, porous, polyurethane foam mattress sprayed with alcohol talcum to prevent adhesion of the foam to the burned surface from which evaporation is increased by the use of a fan heater below the frame (Cross, 1964).

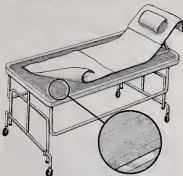


Fig. 1. Breakpoint nylon mesh frame, American Burn.

Postelner, Kirk and Bechteland (1962) described an open-mesh frame of rug covers covered by gauze used for the treatment of neck burns in 10-day-old children (see Wolkenstein (1962) for a discussion and caution because sudden prevented drying of the burn surface and re-emerged infection). He reported successfully upon a plastic-covered expanded-mesh mesh frame supporting the child lying upon a polyurethane foam mattress. It is essential that such plastic mattresses should be made of porous polyurethane foam rather than other forms of non-porous plastic foam.

#### Turning frames

American burn units often rely upon the Stryker frame for turning the patient (Loren (1964) and Brooks Military Hospital, San Antonio uses a number of electrically controlled circular Stryker frames to treat the serious trunk burns incurred from Vietnam). These frames certainly make turning easy for nursing staff and allow the patient to lie either prone or supine but do little to counter the adverse effects of the patient's weight upon the burned surface.

### Like Leonardo's Principle

The problem has been imaginatively tackled by Scalen, Winters and Black (1966) who have described the evolution of 'levitation'—a reversed buoyancy principle employing a large volume-low pressure air system to float the patient on a cushion of warm air and blood air. The earliest models could utilize an existing suction system or plenum system (Fig 2) and the latter was finally adapted to a novel arrangement of pocket seals providing a flexible cap to the bed with the patient comfortably supported upon a cushion of warm, warm air.

The Royal Navy was able to provide reduced awareness throughout the various development stages of the physical and dental medical personnel were volunteers for the physiological studies, which provided insight into. The results of these studies were reported by Scalen, Hopley, Black, Tarnes and Marx (1967) who found that volunteers could not read sleep and pain were in comfort and that body temperatures remained unchanged provided that the ambient air temperature was adjusted within the range 34-37°C (93.2-98.6°F). Expiratory water loss was approximately 20-100 ml per hour and totally replaceable and there were no significant changes in plasma or urinary electrolytes.



Fig. 2 The levitation principle and system of air pockets used by Scalen et al.

### Water Immersion Bed

A different approach to the pressure problem was taken by Russell Goss (1967) who drew attention to the obvious implications of experiments on simulated weightlessness which made use of the buoyancy of water to reduce pressure on the body to 23.2 g/cm<sup>2</sup> (30.70 lbf/in<sup>2</sup>) and designed a water immersion bed consisting of a 40-litre bath with an inlet with outlet chest to a pump, the pump and a thermoelectrically controlled water heating system (Fig. 3). Accurate temperature control is essential and the water temperature must be held at 36 ± 0.2°C (96.8 ± 0.4°F) to prevent sweating. The bed developed for burns also incorporates a refrigeration element to reduce the water temperature temporarily to 18°C (65°F) with a view to controlling nerve stimulation.

There is, of course, nothing new in the current usage for cooling burns, to prevent overheating, for Richard Wharton (1739) who joined the Dutch Navy as a ship's doctor advanced the use of refrigeration in the treatment of burns in his *Chirurgia Transacta* first published in 1735 after he had become Surgeon-Christened to Charles II.

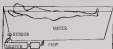


Fig. 1. The control unit with pump and heater at foot of bed, sensor at head.

#### **Intermittent ventilation**

One of us (J.W.) has been associated with the development of a novel intermittent ventilation bed since 1964 and MacLagan and Dixon (1966) have reported favourably upon the use of alternating pressure beds in preventing bed sores. The original intention was to use altered warm air to inflate alternate segments and allow it to escape through vents, during the deflation phase, thus drying the bedded surface supported by the inflated segments. This proved not to be practical and the design was modified to provide a separate blower motor air system independent of the alternating pressure mattress which would fill the same purpose (Fig. 4). This was later incorporated into a disposable plastic envelope to cover the bed with a view to reducing infection risks (see MacLagan *et al.* (1967) for full details). The project was later abandoned for technical reasons and recent attention has been directed towards the development of a more effective and versatile patient ventilation (MacLagan 1968).



Fig. 4. Intermittent ventilation unit with inflatable mattress and plastic envelope.

#### **Water-vascularized foam bed**

It is clear that the safe management of large symptomatic burns of the trunk remains a problem and no satisfactory means have yet been found of achieving an early biological healing environment with control of fluid electrolyte and protein loss other than by early skin grafting and thus very great problems not less the handling of the patient himself. However, MacLagan, Lajchick and Parnes (1968) at the Karolinska Hospital, Stockholm, have reported favourably upon the treatment of burns with warm dry air to increase evaporation of water using a special warm-air bed and a new 'foam vascularized foam-bed' has been manufactured for

Harrison and Jones in this country, one of which has been acquired by the Institute of Tropical Hygiene for test purposes.

It consists of an air chamber made of sheet cellular semi-foam, material coated with a grease impervious plastic film to facilitate cleaning and it may be laid directly upon the spring of a standard hospital bed (Fig. 5). A number of air ducts arranged in a meandering pattern (Fig. 6) distribute air supplied through an inlet duct near the foot end of the bed. The air, warmed upon cellular polyurethane foam matrix, which varies in thickness from 2.54-3.05 cm (1-12.0 in.) is fed on top of the air chamber and warm air pervades, through the matrix, to the patient.



Fig. 5. Unit consisting of cellular foam matrix and plastic film, designed for use as a bed warmer.



Fig. 6. Diagrammatic representation of the distribution of warm air through the meandering plastic ducts used in the bed warmer.

The dehumidifier is a self-contained unit in which the air is dried by flowing it through a slowly-rotating sorbent or chemically regenerated drying element the latter being continuously reactivated by a separate volume of heated air. This type of drying process has a dual and independent way of drying upon the air being dried owing to the latent heat of desiccation and the air will always leave the dehumidifier at a temperature several degrees higher than it enters. However, under certain ambient conditions, the temperature will not be high enough to satisfy the comfort requirements of the patient and an electric heater is therefore incorporated in the dehumidifier, which can be used if required to raise the temperature of the dry air further. The dry air leaving the dehumidifier passes through a connecting duct into the air chamber on which the mattress is supported and from there flows through the lower mattress and envelops the patient. A gauge fitted in the connecting duct regulates the flow, pressure and humidity of the air being supplied to the patient.

Experiments have been carried out at the Institute of Tropical Medicine in relation to the thermal protection of the bed and an improved heat-insulating unit, the advantage of its operation, throughout the life elements of the bed and the temperature and volume heated 1 m<sup>2</sup> of space contained and fed air when the bed was used in a warm environment in use, to an ordinary hospital bed, with. The largest heat sink, plastic (a part of 1) found that during the test period given with two different air conditions, that the effect of raising the temperature under blanket covering conditions would be a minimal increase in temperature and also





The use in conventional navigation of a point of fixation definite, although possibly associated with a loss of the precise degree of depth, is a factor which leads to considerable errors, especially when the eyes are fixed on the horizon and, with increasing distance, the impression of the distance increases. The system used thus leads to a misinterpretation of the distance and, consequently, to a possible further, such as a possible change in the direction of the course, possibly even to a loss of the course or to a possible change in the direction of the course. The system used thus leads to a misinterpretation of the distance and, consequently, to a possible further, such as a possible change in the direction of the course, possibly even to a loss of the course or to a possible change in the direction of the course. The system used thus leads to a misinterpretation of the distance and, consequently, to a possible further, such as a possible change in the direction of the course, possibly even to a loss of the course or to a possible change in the direction of the course.

### Conclusions

The exposure method probably reduces the margin of choice in the management of environmental aspects of the health of a naval officer and naval hospital abroad. The control of food, cleanliness and protein loss and the prevention of infection can more readily be achieved by an adaptation and which is often presented by the weight and redness of the patient and problems of nursing care. Recent attempts to overcome such problems have included the design of plastic meals, electrically operated fixtures, air and water beds and both semi-bed and patient isolation. None is without its disadvantages but sterile warm dry air beds with pressure relieving cushions appear to hold some promise for the future.

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**PRESENTATION OF THE FREEDOM OF THE BOROUGH OF  
GOSPORT TO THE ROYAL NAVAL MEDICAL SERVICE —  
SEPTEMBER 11, 1970**

**By P. B. Gordon Page**

At a meeting of the Borough Council held at Gosport on April 6, 1970, a recommendation of the Finance Committee that the Freedom of the Borough be conferred on the Royal Naval Medical Service was considered. Many a doctor has paid visits to the Royal Naval Medical Service and in particular to the Royal Naval Hospital, Haslar, after which the recommendation was agreed. The proposal to confer the Freedom on two former Mayors of Gosport, Aldermen C. B. Odgers and Alderman H. T. Rogers, was also approved.

That the recommendation to honour the Royal Naval Medical Service was carried unanimously and with acclamation may be regarded as a great honour. The granting of the Honorary Freedom of the Borough is the highest honour that the people of Gosport can bestow. That such an honour is not freely bestowed is shown by the fact that it had been conferred on all our noble eight previous occasions—on six men, the Sovereigns of the Royal Navy and the Fleet Air Arm.

A point arose in proposing the conferment of the Freedom of Gosport on the Royal Naval Medical Service was Alderman C. W. L. Odgers, a former Mayor of Gosport. Alderman Odgers was well known to many of those who have served at Haslar. For his links with the hospital extended back to 1945 when he returned Admiralty service as a boy in the depository. He subsequently came to Chief Forward, a position he held with great distinction for many years. He was to have taken a leading part in the Freedom ceremony and his sudden and untimely death on August 17 was keenly felt. He was one who had given a lifetime of dedication to sea in his follow-up.

Gosport's great day of civic and service pagentry was heralded by the publication of the following notice.

**BOROUGH OF GOSPORT**

**NOTICE IS HEREBY GIVEN** that a special meeting of the Council of the Borough of Gosport will be held on Friday, the fifth day of September, 1970, at 6.00 p.m. and all and several of the Members of the said Council are hereby requested to attend.

**SPECIAL ORDER AND FORFEITURE OF BUSINESS TO BE TRANSACTED TO CONFIRM the Honorary Freedom of the Borough upon the Royal Naval Medical Service Alderman C. B. Odgers and Alderman H. T. Rogers CBE.**

**EDWARD ADAMS PARSONS**  
Town Clerk

*From Med  
Gosport  
Signed the 4th day of September 1970*

The first of the several ceremonies that took place on that historic day was musical in the Ballroom of the Thurgate Walls which had been redecorated and was decorated for the occasion. The final arrangements were quite superb.

In 1931 all Members of the Council fully retired, none in their 40s and all the guests were invited. The Minor Beers now escorted the Mayor, Mr. Osborn and Mr. Rogers to their seats and shortly after the Musical programme appeared. The Mayor (Councillor R. A. Bartlett) was preceded by the Chief Inspector and the Minor Beers, and followed by Aldermen Rogers and Osborn, the Chaplain and the Town Clerk.

After the Mayor's Chaplain had said prayer and the gathering had stood in silence in memory of the late Alderman Giles, the proposals to make Alderman Osborn and Alderman Rogers Freeman of the Borough were made and seconded. The Council now formally resolved to confer the Honorary Freedom upon them and the Town Clerk read the Freedom Scrolls when the Mayor presented the Candidates, the new Freeman and they signed the roll of Honorary Freeman.

The proposal to confer the Freedom of the Borough on the Medical Service came from Councillor B. G. Boughton (RNVR) who traced the history of the Service, emphasising that its association with Gosport spanned more than 200 years. Seconding the motion, Councillor Mrs. Reynolds (and Gosport) had always been proud of its long association with the Service and was most grateful for its work it did. The Council then formally resolved to confer the Honorary Freedom upon the Royal Naval Medical Service and the Mayor then proposed that the Council and Chiefs, adjourn to St George Barracks where the Royal Naval Medical Service would receive the Freedom.

Among the host of guests who included high-ranking officers from the three Services were Mr Peter Kirk, Under Secretary for Defence, Navy, Admiral Sir Henry Lane, Command-in-Chief, Naval Home Command, representatives of the Fleet Air Arm and the Submarine Branch, both holders of the Freedom award, and Mr J. Taylor, Director, a former borough treasurer, until that day the only surviving Freeman of Gosport.

At 1130 a Queen's Guard from HMS *Exeter* and other representatives of the Naval Home Command and representative contingents from the Royal Naval Medical Service headed by the Royal Warrant Band of Flag Officer Naval Air Command, marched on to the parade ground at St George Barracks and took up their positions.

The Medical Director General and the Mayor, on arrival at the door, were received with the General Salute (Salute) after which the Director opened the Mayor to welcoming him as an Inspector of the Parade (Fig. 1). The Parade Commander, Warrant Officer Commander G. L. Hamlyn, DPM, was addressing the last day of the Service before retirement. The Guard was made up of 100 ratings, boys from HMS *Exeter*, HMS *Exeter*, HMS *Colgate* and HMS *Exeter*, HMS *Exeter*, HMS *Exeter*, HMS *Exeter* and HMS *Exeter*. The 200 Medical Service personnel were drawn up into seven column platoons as follows: Medical Officers, Royal Ratings from RNMH, Ratings from other Establishments, Junior Ratings from RNMH, Ratings from RNMH Plymouth, Malta and Gibraltar, Junior Ratings from the Training Division, RNMH Warley and Nursing Officers and Naval Nurses.

A sudden downpour, noteworthy for its intensity in earlier history, and some guests starting during the inspection, which however continued without interruption. After the Medical Director General and the Mayor had returned to the dais, prayers were said, after which a luncheon was provided.



THE MAYOR, ALDERMEN, AND MEMBERS OF THE COUNCIL, WITH THE MAYOR'S WARDEN, AND THE MAYOR'S CLERK, AT THE MAYOR'S BANQUET, 1911.

The Mayor now called upon the Town Clerk to read out the Freedom Scroll which is contained on the following page (Page 7).

The Mayor then addressed the assembled company.

**Admiral Blandford, Officers and Men of the Medical Service of the Royal Navy**

Today marks an historic occasion for us all, as the Borough of Clonfert, which has been the home of the Royal Naval Medical Service for something like 250 years mark the 100 years by looking upon your Service the Foundation of the Borough of Clonfert. This is an honour which is not lightly given; it is an honour which is only conferred upon those who have made an outstanding contribution to the development, progress and well being of the Borough. Above all things, the Medical Service of the Royal Navy through all its history has been characterised by its deep, not only towards its own wounded, its own sick, its own return, but also to the wounded sick and the return of return, back to peace and to rest whether they be friends or enemies. Perhaps during the last five years this has come to a climax whereby your most excellent hospital at Clonfert has contributed more largely towards the medical service here in Clonfert and this, of course, is something which is almost unique in the annals of history and of for no other reason this should be well worthy of the honour which we bestow upon you today.

Admiral Blandford, Officers and Men, it is with great pride and pleasure that I represent Clonfert and its people, under me you that they on behalf of the Borough and its people the Honorary Freedom of the Borough of Clonfert.





Fig. 1. Commemorative Casket for the 100th Anniversary of the Royal Naval Medical Service

During the parade the band played a march, *Respect and Salute*, specially written for the occasion by Newport Commandant F. M. Kinnear (Fig. 1). It was most favourably commented upon and applications have been made for it to be accepted as the official march of the Royal Naval Medical Service.

The ceremony of the day was a lovely luncheon for 100 guests at the Newport County Grammar School. After the loyal toast, the toast to 'The New Freemen' was proposed by the Mayor who said it was essential for the Freedom to be granted to more than one or two persons at any one time.

This occasion is unique in the history of Newport at least. We are returning to the Freedom of the Borough two of our most distinguished citizens and a Branch of His Majesty's Forces which has an outstanding record of service—not only to the nation, but also to Newport itself.

Comrade Kinnear paid tribute to the outstanding service of the two Additions and continued:

Now, I now join in the Royal Naval Medical Service which, since 1897, is a corporate body within our walls and it was the objective corporate without. I trust, any line of men understanding. I do not need to tell you that for over two centuries the Royal Naval Medical Service has played its prominent part in the life of the town. It is an outstanding fact that 23 years after it was mainly established in the Borough it has over 1,000 personnel in 54 wards in three days a hospital of unimagined size.

A few weeks ago I made an effort to discover the present capacity of Butler Hospital but my efforts met with but scant success. I can only think that it is sufficient in the treatment which so many of our citizens have received in Butler Hospital, and so wishing a Adventful



FIG. 1. *Exterior view of the stadium, showing the surrounding buildings and the large open area.*



FIG. 2. *A group of people, possibly students or staff, standing in a line, looking towards the stadium.*



Hospitals to take under because those of our civilian population who are in need of it are just as anxious, that if once the full capacity of his hospital became known, both of our countries would be flooding for Hader Hospital for a period of rest and recuperation.

I cannot pay too high a tribute to the willingness of the Royal Naval Medical Staff to take under its care those of our volunteers who are in need of urgent medical care and the excellence of the treatment which they receive. On looking up the records I find that one of the first Superintendents of Hader Hospital, Dr James Lamb, received no annual remuneration for this major task, the magnificent sum of £200 a year. When I look along the table today I have no idea that pay and conditions for the appointment of Surgeon Rear Admiral have shown a marked improvement over the intervening two centuries.

My researches into history have also revealed a further interesting fact. Today is not the first time that the Royal Naval Medical Service has enjoyed the freedom of Surgeons' when the previous occasion was no other more of an unofficial basis than today's ceremony.



Fig. 4. *Surgeons from 'Surgeons and Sailors' composed by Surgeon Commodore P. D. Carter for the service*

During the closing years of the 18th century, the evening roll call in the hospital revealed a considerable shortage in the number of convalescent patients than the numbers carried on the roll. The occasion, as many as 40, and sometimes 50 of these convalescents, could not be found within the hospital walls. Further enquiry disclosed a considerable trade in sheet gas and rum was being carried on within the hospital walls. This was reported to the Lords of the Admiralty and their Lordships not immediately depressed their displeasure and ordered an enquiry to be made taken into them, savings here. It was not until some time later that the extent of about two apparently organized phenomena was discovered when the savings rings for the sheet machines and the entry rings for the sheet supplies were discovered to be one and the same—the main hospital doors, which at that time opened directly into Hoxie Creek. Fortunately however, over the years, the Borough Council have installed a modern and efficient sewage disposal system which enables others the signs of solid bodies in our direction, nor the story of spiritual ones in the other. Well, if this isn't taking a liberty in a freedom, I don't know what is.

Today we have managed at long last to regularize the position, not that we are supplying them with gas and other comforts, but we have admitted them to the Hoxiebury Prisoners of the Borough of Gosport, and if this makes them proud (which I hope it does), it makes us doubly proud to be in the position to realize this honour. Doubtless asked to be in a position to say "Thank You" to Hoxie, its present and its past representatives, for what it has done in the past for the Borough, what it is doing today, and what it will undoubtedly contribute in the future. Without doubt Gosport is a Service town and what you maintain the Service in Gosport you mean the Royal Navy, and therefore too, the Royal Air Force to be stationed in a Service within a Service, hence I think with a due mark of affection and respect which this town feels for Her Majesty's Navy.

Ladies and Gentlemen, I ask you to rise and drink with me to the Town in the New Presence of the Borough.

The Medical Director General in reply to the toast said:

"Your Worship distinguished guests, ladies and gentlemen. This is a great occasion in the history of the Royal Naval Medical Service and I feel very proud that we can now call ourselves Friends of the Borough of Gosport. I propose the following sentence: First Gosport, as well."

Mr Mayor, you have said some very kind and complimentary things about our Service and I would like to say upon how much we enjoy working in close association with you in Gosport and how rewarding it is for us to know that our work is appreciated. It is a great privilege for us to be accepted into and to take part in the community. The magnificent other centre which you have so generously promised will be our permanent possession and a constant reminder of the local interest in us.

Our partnership has developed along the lines of a good and successful marriage and like such marriages, it has had its early problems and fleeting troubles. Perhaps, even here, like a little longer to solve than those of the average family.

It is recorded that doctors have been carried in dipping steps since Roman days and the Admiralty too has always been concerned with the health and well-being of its men at sea, thus in the 17th century the vessel about was cared for medically but, also, in these days for the sick or wounded make distressed sailors, the going was tough, rarely were there any adequate medical arrangements and there was often little to sustain him apart from charity from the Chatham Chain. As early as 1866 John Evelyn, one of the Commissioners of the Dock and Harbours, urged the need for the Navy to be provided with hospitals.

of its own, but it was not until fifty years later that there was a first real attempt to look after the sick, when Sick Quarters were set up in Gaspot in Fortuna, where about hundred patients could be cared for at a time. That was under the contract system, which was not an unsatisfactory choice. I quote the following extract from the Memorial of the Board of Admiralty to His Majesty in Council, September 13, 1744:

The Want of Royal Hospitals on the coast of the Kingdom, and the want of sick men being performed for Contract, is a method liable to such abuses as are others, tend to the health of men, notwithstanding all that is to be taken to prevent it. But when the folly of the poor men is considered, increasing themselves with strong liquors at the height of their distempers, the great Sufferers that are wrought away by such intemperance, and the desertion of great numbers who receive little compensation to them, and the distress of poor Majesty's service against putting a speedy stop to an evil of such pernicious consequences, which can in no way be effectually done, but by building hospitals.

The Admiralty at last was successful in getting approval to establish hospitals in the three main ports. It was now in the happy position of being able to fulfil its humanitarian obligations to the sick and wounded and at the same time derive some splendid fringe benefits, in that the high, guarded walls of the hospitals prevented the desertion of the convalescent poor-garaged sailors and there was thus a saving in men.

It was first suggested that the ruins of Fort Astoria Castle should be converted into a hospital for the Fort Vancouver area, but fortunately this was turned down on the grounds of expense. Instead three new hospitals were built: the first at Heceta was opened for patients in 1755, Pyschich opened its doors in 1760 and the Metcalf Hospital at Chatham in 1828.

Later war hospitals and Sick Quarters followed the Fleet around the world and I am happy to say none will remain in being and today we have with us experienced men from Russia and Ceylon.

As the Navy gradually moved to barracks and training establishments where as-needed sick-beds were set up and men he have to get work of these throughout the three continents.

In the early days at Gaspot there were major domestic squabbles between the Governor of the Hospital at Heceta and the local authorities. One worthy of mention is the Battle of the Bridge. When the new bridge over Heceta Creek, between the town and the hospital, was eventually raised in 1760 after many delays, the Heceta hierarchy, to maintain its livelihood, set up a bridge at the Gaspot end of the bridge and obtained a license from the Gaspot magistrates to sell liquor. It became so popular with the staff and patients that to such drunkenness and disorder the Governor petitioned the magistrates to refuse his license. This failed and he asked the Admiralty to have the bridge removed. This also failed and although he tried to block the private road to the bridge, a satisfactory solution was only reached when the bridge was destroyed by fire in 1825. Since those days we have built better and stronger bridges, those of friendship and co-operation and we have now reached that state of wisdom and maturity in which there is happiness in the marriage bed.

In the 19th century we have gone back to a better old spring in the shape of the Institute of Naval Medicine at Alexandria. In so bold the Institute of Naval Medicine is unique and covers the highly specialized needs of the Navy and deals with training, research and development in submarine medicine, occupational medicine and modern methods. The work is essential to the command and highly sophisticated Navy of today. I trust the Borough share our pride in our progress in our arrival.

Sir James Ross, Admiral Sandwich then asked the Mayor to accept on behalf of the three ages a silver astrolabe dish<sup>2</sup> as a token of the appreciation of the Medical Service to the Borough of

Gosport and in recognition of the honour done to the Branch. Contributions towards the purchase of the dish had been received from all members of the Medical Service both at home and abroad and it had been absorbed.

*Presented to the Borough of Gosport by the Royal Naval Medical Service at the Porthouse Community on September 11, 1976*

Members Graham and Rogers, independent members of the Council with a combined total of 60 years' service, also replied to the toasts with amusing speeches.

Alderman J. Kaine then proposed the toast to the guests and said that it was a tribute to the town and the new Freeman that guests had come from all over the world for the ceremony.

Replying, Surgeon Rear Admiral M. S. Wimpson (Medical Officer in Charge of Horder) stressed the importance of the hospital staff by admitting convalescents as well as service patients. He also paid Master's tribute to the late Alderman C. W. L. Giles.

There ensued a truly magnificent dry, rich in wine and service hospitality, in which the friendship and respect held by the people of Gosport for the Royal Naval Medical Service was accorded for posterity.

\* It is suggested that this very beautiful silver chalice, bearing with the Queen's head, should be held by each of the home hospitals for a year as a term of service. In order that it may be represented by as many members of the Branch as possible, it is to be displayed at the Medical Society, Alder, Gosport, Alder and Gosport House. Most of such hospitals is noted.

\* The Award is made to a recipient of a dish of the following service staff for the Christopher House who, after the death of the recipient, had been (1976) both before and after the war in the Spanish Armies. During the First War, the dish was given to the recipient of the Christopher House, a recipient of the Royal Forces in Plymouth and the dish was given to the recipient of the Christopher House, a recipient of the Christopher House. The award was presented early in the present century when a workman put the gold through one of the dishes.

## AN OUTBREAK OF LEAD POISONING OF BREAD IN MALTA

Interacting Association with British Food History

By Len Vassallo

This is an account of a most unusual outbreak of lead poisoning that occurred in Malta in the turn of the century. The detailed story has not been described before. The outbreak of great interest also because of its indirect relationship to highlights of British food history. The outbreak was caused by the widespread consumption of Maltese bread by lead solder during the years 1903 and 1904. One notes that only one year previously (1899) attention had been made of Maltese bread in the official report of the Laboratory of the Medicine Public Health Department. The Maltese Public Health Ordinance of 1900 had required that special attention should be given to the baking and sale of bread. Samples of bread taken from various bakeries and analysed by the Public Health authorities had (necessarily) proved that the general public is supplied with wholesome bread made of good wheat flour well-worked and well-baked (Zammit, 1902).

The conviction of the Public Health authorities was hostile-dietary in the spring of 1903 and following months when a widespread epidemic made illness of different degrees of severity began occurring among the population in our cities, towns and villages. The illness was soon diagnosed as being lead poisoning.

Very few degrees of lead poisoning occurred among the population. The exact estimation of the number of cases treated in home cannot be ascertained as no adequate records were kept. The majority of the mildly affected persons were treated at home. The admission records of the Government Central Hospital were studied in order to find out the number of cases admitted to hospital. The Central Hospital was at the time the only acute general hospital catering for the medical needs of the Maltese population. The records show that nine patients were admitted during the period March 1903 to March 1904. Seven of these patients were admitted during the months of May, June and July 1903. The patients remained in hospital for an average rate of two weeks. There were no deaths. The hospital records for the previous four years show that no admissions of cases of lead poisoning occurred. The lead poisoning was soon diagnosed as being related to bakeries as all the cases were connected with bread and bakeries.

The possibility of contamination from being the cause was at first ascertained. This theory was soon dispelled when the selected flour was passed to laboratory and put to be free from lead contamination. Further observations showed that the wood used as fuel in the bakeries was the source of the contamination of bread by lead.

The majority of Maltese ovens used for baking bread were at that time of primitive type (Public Health Report 1904). They used to be heated by the burning of lead recently woods direct on hearth floor. The ashes were then swept away and the loaves were then put on for baking on the heated floor. The bread, after being baked, could easily pick up some of the ashes remaining on the floor of the oven. As the ashes were contaminated by lead oxide derived from its lead painted wood the danger to the bread thus exposed is obvious. The authorities at the time implied that the method of poisoning was totally by accident. One strongly believes that some of the personnel engaged in the baking of bread were most probably poisoned by the inhalation of the lead poisoning fumes as a few have repeatedly shown since that inhalation of lead is much more toxic than its ingestion (Laguarda County, 1912). Henry Lane

out of the 146 samples of cakes taken from the boats were shown to contain lead oxide upon a proportion of 8.6 per cent. Thirty six out of the 72 samples of bread analysed also contained lead (Eames, 1962).

One can judge from reading the newspapers of the time that there was considerable public alarm over the dangerous contamination of bread and its possible consequences. Public opinion hardened against the bakers who were using contaminated lead white before war (common) before the Magistrate's Court and severely fined for their supplying bread given access to the health of the public. Some of the fear was very clearly by the prevailing standards. Thus the *South Wales Chronicle* reported in its issue of May 19, 1902 that one baker was fined 15s. while on its issue of the following day it recorded that another three bakers were fined 45 each and another two bakers 15 each (*South Wales Chronicle*, 1902).

The source of the painted lead i.e. of great interest as it is closely connected with a then leading one of the most powerful armaments of the British Royal Navy. The poisonous lead used by the Maltese bakers was derived from the painted wood of the famous old wooden three decker HMS *Blenheim* which had been the first Flagship of Malta since 1829. By 1902, the state of the old ship was poor and the ship was drawing 35 inches of water daily (*South Wales Chronicle*, 1902). It was then sold to a private Maltese firm on October 10, 1902, towed from its lateral moorings near Fort St Angelo in the Grand Harbour to the adjacent Marsamxett Harbour and there broken down for scrap. Some of the wooden timbers were sold to Maltese bakers. Her beautiful figurehead was however preserved and is still to be seen at Fort St Angelo (Fig. 1).



Fig. 1. Figurehead of HMS *Blenheim* at Fort St Angelo, Malta.



Fig. 2. HMS Valiant. Reconstitution of the National Maritime Museum, Greenwich.

HMS Valiant was originally built at 128 guns under thought to have been one of the largest if not the largest built for the Royal Navy during the Napoleonic wars (Fig. 2). She was laid down in Plymouth in early in 1793 and was completed 17 years later in 1810. Her length, beam and draught were 381 feet 53 feet and 19 feet (Callaghan 1984). In the 1830s she ranked as the second oldest ship in the Royal Navy, the first being the other first rate—*Melampus* (1833).

Her naval history is a continuous one of the Royal Navy for the last century. She took an active part during the blockade of Algiers and the Tignes in 1807. She was present during the naval attack on the batteries of Civitas in 1814 and during her career flew the flag of such well known admirals as Lord St Vincent, Sir Sidney Smith and the Vice Admiral Sir William Parker. She finally held the world's eyes headlong in July 1913 when the catastrophic confrontation on the Tropic of Cancer *Campesadora* collision was held at her 10 years (1813). HMS *Valiant* (the Flagship of the British Mediterranean Fleet) had collided in broad daylight on a fair tide, with HMS *Campesadora* during naval manoeuvres in the Eastern Mediterranean. The tragedy cost the lives of 180 men (Lasky 1913).

On consideration it will be obvious that most of the Valiant's timbers, after 100 years of naval service, must have probably been most heavily painted. Because of its continuous presence, lead paint is one of the best substances for the painting of ships. The lead painting of ships has been known for centuries. Thus Pliny the Elder (AD 55–79) comments on the Romans painting their ships with native cotton (white lead). The use of lead in the painting of ships continued throughout the centuries until the last two decades. The dangers connected with lead were again highlighted in the early part of this century when a considerable increase in the incidence of lead poisoning occurred in workers concerned with the non-petroleum based





## NAVAL MEDICAL CERAMICS

By F. B. Griffin Page

### ABSTRACT

Only comparatively recently has interest been taken in medical ceramics. Because of this examples are few and far between. Three naval pharmacy jars, tooth jars and salve jars have survived and are described.

### INTRODUCTION

The importance of the medical factor in warfare has long been appreciated and the equipment of our naval hospitals and our fighting ships seems to have always been of first quality. Unfortunately objects such as pharmacy jars, tooth jars and salve jars, particularly those associated with nursing and hygiene, have not until comparatively recently interested either the medical historians or the ceramic historians, and to retain therefore little interest. This is a pity for the study of their uses, attributes and always interesting legends provides historical perspective by revealing adding to the written word, (especially if many more questions and pose problems not so readily described in a study of the literature. To give a simple example, our knowledge of pharmaceutical practice such as the acceptance or disappearance of a medication in a foreign general war, may be expanded by a study of the drug jars on pharmacy jars. Happily, however, the effort obtained benefits has been few or destroyed and surprisingly enough the few surviving objects are some superb examples of the potter's art.

### PHARMACY JARS

Three magnificent English unglazed (unpainted) earthenware pharmacy jars, commonly known as *apothecary jars*, may be seen in the dispensary of the Royal Naval Hospital, Plymouth. Designed on the Greek system by an architect called Raphael, the building of this hospital was sufficiently advanced to be ready for the reception of patients in 1768 and was completed in 1769. "Blue and white" jars (blue painted decorations on a white ground) incorporating the name of the contents in the decoration, first made their appearance about 1650 and were manufactured in large numbers for more than 300 years. The shape of unglazed jars associated with the rapid development of ceramics in the 17thc. Throughout the period there were only three popular designs. These have been well documented by J. E. Griffin (1969). They are:

1. The *sigil* design (1650-1700).
2. The *bird* design of which there are two principal versions—the *Apollon-peacock* design and the *long bird* design (1640-1775).
3. The *diademe* design (18th century).

The three jars in Plymouth Hospital are of the *long bird* design (Fig. 1). Note that a basket of fruit is placed above the centre of a lobed panel which has a wavy rather than a straight outline. Long birds, facing each other, perch on top of each end of the panel, their heads facing outwards. Under the panel is an angel which has outstretched wings and suspended from the clouds. Two female figures are also suspended from the ends of the lobed panel, while decorative loops link the ends to the centre. These wings incorporate a bowl of Hygieia. The jar has straight necks. It is known that naval vessels when they were fitted with



Fig. 1. Three glass pharmacy jars, containing the ingredients of the Haemorrhoid, Lentiv and Sapon ointments, in the possession of the Royal Naval Medical Museum, St. J. about 1850, nos. 26-28, 29 (left to right).

metal covers. Each has an oval body standing on a splay foot and the base is unglazed. Each is 10 cm in height. The dating of the glassed pharmacy jar is based on a comparison with dated jars. All the histories of the Plymouth jars are found on one side towards the end of the jar; glass was produced from about 1760-1770 and in fact the design details are virtually identical to those on a recorded jar dated 1765. As the approximate date of manufacture of the jar coincides with the opening of the hospital, the suggestion does not have to be stretched too far for one to believe that the jars have been at the hospital since its inception. The glass was first produced principally at potteries in London, the Wilt country, particularly Bristol and in Liverpool, but it is extremely difficult to attribute particular jars to particular potteries. It is tempting to suppose that these jars were manufactured at Bristol, it being the nearest pottery. Large jars of this type were possibly as much store jars as storage vessels. These exact depictions were colourful as suggested by a contemporary review of a visit to the water hospital at Hader:

On Friday, June 26, 1800, Alexander, Governor of Assam, the factors of Orléans, the Imperial Agent, and a large train of military, civil and naval officers, attended in my city, and remained three entire weeks in the summer, under the general orders, which preceded. When, on the 10th, the Englishman, and others, the government of the colonies, and the English minister, together, in a all very pretty—very pretty, but not good for the country—being too good on his house.

The drug names on the three Plymouth jars are as follows:

E. HAEMOR.  
E. LENTIV. C.  
E. SAPON.

E. Haemorr is an abbreviation for *Emulsion Haemorrhoidalis*—a gentle preparation for pain in veins during the latter half of the 18th century.

E. Lander 'C' is an abbreviation for Elixatorium Landeri et a synonym for Elixatorium Senner. An elixatory was a medicinal preparation consisting of a powdered drug made into a drink with honey, syrup or a conserve. An elixatory of roses was a mixture of roses, sugar and cinnamon pulp. A contemporary pharmacopoeia describes it as an efficient 'heraldic preparation'.

E. Sapon is an abbreviation for Euphorium Saponis or soap plaster. It was prepared from sliced soap and plaster of lead. The soap was mixed with the melted plaster and then heated down to a proper consistency. The term euphorium denotes a medicinal preparation for external use.

There is now a gap of over a century. The pharmacy jar (Fig. 2) is from the Royal Naval Hospital, Haslem. It is decorated in blue on white and has no factory mark. The badge on the jar and lid each consists of a crown, a flial anchor, the initials R.N. and a wreath of oak leaves. The jar is unlikely to have been made before the beginning of the 20th century. Another pharmacy jar, this time from the Royal Naval Hospital, Plymouth (Fig. 3) is decorated in blue on the outside and the inside (which is white) has a blue badge similar to that on the preceding jar. The base of the jar is compressed with a broad stroke and the word CALSON, and a blue pencil mark 'CALSON LTD ENGLAND'. The firm was at Haslem in Haslem, Staffordshire between 1889-1893.



Fig. 2. Pharmacy jar, Haslem, Staffordshire, 1889-1893. The jar is decorated in blue on white and has no factory mark. The badge on the jar and lid each consists of a crown, a flial anchor, the initials R.N. and a wreath of oak leaves.



Fig. 1. *Leuciscus pharus* representing a mortar in the museum. The handle, which is white, has a silver body similar to glass in the present day design. *Ant. Med. fr. Coult. Ant. Museum* c. 1800. H. 25 cm.

#### LEUCISCUS

A number of leech jars of similar design, for use in naval hospitals still survive. One illustrated (Fig. 4) may be seen at the Royal Naval Hospital, Plymouth. It is of a white ware and bears no leuciscus mark. The word *LEUCISCUS* is in black enamel and the two handles are in brown underglaze enamel. Each consists of a crown, the enamel 19.50" and a wreath of oak sprigs with acorns. The jar itself is also in the shape of an acorn and is 31 cm in height. It is difficult to date with accuracy, but it probably belongs to the latter half of the 18th century. At the turn of that century earthenware leech jars became obsolescent, being gradually replaced by glass jars. This change apparently brought about a decrease in the mortality rate for leeches! Only glass leech jars appear in 19th century catalogues, but earthenware jars were continuously advertised in the 19th century, particularly in the first half.

Leeches are, of course, occasionally used even today both in eye surgery and in plastic surgery as an aid to reducing swelling. The period at which the medicinal leech first came into use in medicine is unknown. Celsus A Cornelius, who probably preceded Galen, mentions it as having been employed in his time as a substitute for cupping, but it is not recorded in the writings of the more classical authors on ancient medicine. The use of leeches for drawing



Fig. 4. Jar of Læches, 1674-80. Height 12 in. Diameter 6 in. Weight 1 lb. 10 oz. (1.15 kg). The jar is made of glass and the stopper is made of wood. The jar is decorated with a label that reads 'LÆCHES'.

laced was very popular in the 19th century, and the following extracts from *A Dispensary, or Commentary on the Pharmacopoeia of Great Britain* by Robert Crawford MD FRSE published in 1842 is of some interest:

The læches are, sometimes in process, on the green scale. The best selected probably will be found from the long and as more numerous specimens occur, and selected in vessels which, being of a less size will do so. They may thus be preserved in vessels made of glass glass bottles, half full of water, and lightly covered with cotton wool or fine gauze. The water, which must be cold and still, ought to be renewed every three or four days, till they are nearly dry, and subsequently kept a fortnight. The preparation should be maintained in solution at periods. It might occur in solution before 10%, and smaller changes than be carefully avoided. The vessels should be kept when filled in place, and all things necessary ought to be excluded from the attention. And in order to be sure to be properly preserved from the general atmosphere, these glass preparations may be enclosed in an air-tight jar, the inside coated with wax, and then through the top of the jar, the top can be made of glass, which can be kept in solution. These vessels may then be in great numbers. The vessels should be made of glass, and the whole body, made of the ordinary material, there may be made, and like the water, with their vessels, a small jar, which will not be of the same size, but of the same size, and in a time when they are used in great numbers.

It is often difficult to get læches to be made gently and easily, and to be made by the best of the profession. The læches, and of which is made of great service. In the first place, the læches should be chosen, if possible, for which purpose a hospital should be made out of the jar, where they are used, and made to be gently changed in the liquid—where the jar is not to be used, to be made connected. The læches should be made of the best of the jar, and they should be kept in the jar, and of the jar, because they are used, if they be then kept in a glass bottle, and not in the jar, and if the jar is properly constructed, they will probably be in great numbers, and the whole body, made of the jar, with their vessels, and when these vessels are used, they will sometimes be often being, however, the above is a mistake in practice.

An important point in the management of læches is to make them with a small jar, and after they have been used, before they are changed, the læches should be made of the jar, and they will not be used again for many months. The most important læches is to keep them gently, because the læches, after spending a few years of use, are then made to make them still, and to give them by themselves in great water.

which is removed twice a day for some time as a means of the local removal of excess proteins off from these tissues.

*Diets*—A strict diet is applied to the part of the integument of the human body. This may not be applied to the muscle, bone, joints, etc. and no persons have been equipped out of control. It is noted by scientists there will be little constructed like the machine, as the nutrient taken by means of a thermal process during the passage part of the body with a food system. When they have it stopped off the nutrient part may be lost and be as far as is possible by increasing the use of more continuously for the use and the replacement of proteins. There is doubt about the possibility of achieving the necessary use of the muscles of the body. A single time when applied continuously may stop the loss of drive from loss of the blood half the amount of blood in its average.

Several measurements are continuously are to come from these measurements. Sometimes the use can be as it with difficulty controlled. There is a big difference between blood in the way as in hospital treatment, the reason being a human body is a complex organism which, like itself, that body has a certain kind of use and I have the use of the body may be used to having the human body from which there are the various. Length time from beginning (possibly allowed by using on the record) about the matter after the treatment to see the result. Great also in the measurement and the way there is a way without danger because the clinical may make various elements before it is changed, and the systems of the treatment in various are done to test. The test results is a very common of constant use which is to a typical person in the body.



FIG. 1. Erlenmeyer flask used for the test. The flask is made of glass and is 100 ml. in capacity. It is used for the test.

### INDUSTRIAL JARS

The two industrial jars illustrated (Fig 3) were in use at the Royal Naval Hospital, Plymouth, in the early part of the century, and were made by W. T. Copeland & Sons. They are based on an idea of Robert Alcock published in the middle of the 19th century. An intention in this product of the process of designing a drug for the treatment of an industrial poisoning. An intention of some, for instance, was a paper for propylamine at the beginning of the century.

Along a separate was simply an earthenware jar provided with a lid and decorated with a perforated diaphragm near the top, in which the ingredients were placed. It was claimed as a more uniform and efficient mode of preparing medicinal infusions than direct immersion was. The larger of the Plymouth jars, 30 cm in height, is decorated in blue on white and has a broad arrow impressed on the base. The smaller jar is 18 cm in height and has the brown printed mark 'W. T. Copeland & Sons/Stock-on-Trent-England' under the lid and the same mark and an impressed broad arrow on the base.

### SHITTING (Copeland)

Spitting has played an important role both in social custom and in public health. This practice was widespread in Britain from at least for 17th century until the beginning of the 20th century, and that this was so can be gathered from literary sources and from surviving epitaphs. The decline of spitting went along with the increase in knowledge of bacteriology and preventive medicine together with the realization of the health hazards of spitting. The black, handle spout shitter (Fig 4) is 17.5 cm in diameter and was made by Wedgwood about 1880. It is said to have been in Lord Nelson's cabin at Trafalgar and may be seen in The Victory Museum in Portsmouth.

### NAVAL HOSPITAL CROCKERY

A few pieces of old hospital crockery are illustrated (Figs 7 & 8). The shilling earthenware meat dish (32.5 cm x 25 cm) has an abstract brown badge so that on the back jar and two blue bands round the edge. It has no foot rim and no factory mark. It probably dates to the latter half of the 19th century.

The earthenware basin with a diameter of 16 cm, and capacity of 450 ml is decorated with a blue 'M H' badge and is marked on its base in blue with an Admiralty hand emblem and the words 'Copeland Ltd Spoke/Landfill glass'. It was for the use of patients and made in 1938.

The earthenware mug, 9.5 cm in height, and made by Keeling & Co Ltd, Devon, is also decorated with a blue badge, and is an example of the design used on naval hospitals in 1915.

### APPRECIATION

I would like to thank Margaret Gwynne, J. M. Callender, A. P. McQuarrie, and recently Professor Hardy and Professor Jeffrey (St. Plymouth), Clarendon B. Cook, Curator of The Victory Museum, Portsmouth, and Mr P. G. H. Smith, Chief Pharmacist, Royal Naval Hospital, Plymouth, for the assistance in the collection of the material information for this article. I would also like to thank my wife for making suitable photographs with the assistance of Mr G. Smith who kindly assisted by Captain J. Paul. Finally I would like to thank Margaret Rose, Assistant A. P. Smith (1988) for the manuscript preparation.



Fig. 1. A stainless steel metal water therapy cup with a diameter of 100 mm. (100 × 1 × 1 mm).



Fig. 2. A stainless steel metal water therapy cup with a diameter of 100 mm. (100 × 1 × 1 mm).



Fig. 3. A stainless steel metal water therapy cup with a diameter of 100 mm. (100 × 1 × 1 mm).



Fig. 4. A stainless steel metal water therapy cup with a diameter of 100 mm. (100 × 1 × 1 mm).

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## THE DAVID BRUCE ROYAL NAVAL HOSPITAL, MALTA

By Cyril McInerch

It was in 1797 that Lord Nelson is said to have selected the promontory of Grand Harbour on which stood the country house of Don Giovanni Botta as a suitable site for a hospital for the fleet. This was strongly supported by Don Juan Knipe, the Physician at Malta, as there was a large number of surgeons and British grooms in the region which would aid him in the treatment of horses.

Any further action was delayed by the capture of the island by the French in the following year. But in 1805 Mr John Gatt was appointed as the first surgeon of the hospital. Even in those days there were delays over building and it was not until 1832 that the main pavilions of Bight were completed. Bight continued to function despite disaster in both World Wars, until September 27, 1978. On that day, patients left for what had been the Military Hospital at Mtarfa.

The foundations stone of Mtarfa hospital had been laid in 1915 by the then Governor and Commissioner-in-Chief, Malta. His Excellency General Sir Leslie Bagnall, GCB but it was not until the end of 1925 that the hospital was completed.

The Military Hospital had a distinguished record through the years which included taking over all capacity from Bight when the latter's operating theatres were bombed in 1942. It finally closed in 1965. However throughout all this period there had been considerable discussion as to the advisability of moving from Bight to Mtarfa and the present Assistant Accounts Officer of the hospital when he joined 6894 Naval Base was given the task of planning the move to the supply department from Bight to Mtarfa. That was in 1965 but the move was postponed owing to the Movement crisis and the final decision was not taken until 1967.

Rebuilding began in February 1969 and included the provision of a new air-conditioned operating suite and a general three out patient complex which reflects the modern world away from predominantly inpatient arrangements and treatment and to maximum outpatient care. The Recovery Room has been designed to operate a virtual records system for both in- and out-patients. It is in communication with all consulting rooms and waiting rooms areas and the typing pool is next door. The X-ray department, pharmacy, laboratory and physiotherapy departments have been grouped to close proximity to the out patient facilities in the form of the original building altered.

In addition to the pharmacy, the main building also houses the large medical stores required to supply the Service medical centres in Malta and Libya as well as visiting ships.

The means of entry and medical affairs are on the far side of the hospital compound and the main staff accommodation is in neighbouring St. David's Barracks. The senior rates main entrance is a splendid site overlooking the old capital of Mdina and the club for junior rates known as the Ours, offers above average facilities. Separate cubans for all nurses and junior medical branch ratings is an adjunct of the future for it is a general reality.

The hospital was formally opened on October 1, 1979 by Her Excellency Lady Darnley wife of the Governor General and the ceremony was attended by a small but distinguished gathering which included, on the medical side, the Medical Director General (Naval).

Surgeon Vice Admiral L. B. Broadbent, the Director of Naval Dental Services; Surgeon Rear Admiral (Dr) W. I. H. Foster, the Medical Officer in Charge, Royal Naval Hospital Plymouth; Surgeon Rear Admiral R. P. Phillips, the Deputy Director General Army Medical Services; Major General R. J. Gray, The Flag Officer Malta; Rear Admiral D. G. Lees, the Air Commodore Malta; Air Commodore C. V. Wells, the Deputy Commander British Troops Malta; Colonel G. E. A. Roddy were also present, as well as the Governor General Sir Murray Gordon, the Archbishop of Malta, Monsignor Michael Gozo, the British High Commissioner Malta, Mr Lamberty for Deacons Wilson, the Chief Commissioner Medical Officer Malta, Dr A. Carlucci and the Regional Director Mediterranean Area, Ministry of Public Health and Works. Mr R. G. Wilson, Lady Dorman welcomed past and present party consisting of representatives of all branches, including medical officers, nurses, dental nurses and medical branch personnel. In her speech she referred to the mission of the name of David Bruce, originally a tribute by the R.A.M.C. to one of its more famous staff members. Sir David Bruce, who was Chairman of the Commission which investigated Unpleasant Fever. Lady Dorman also referred to the umbilicus of the R.A.M.C. and the R.A.F. Medical Service on either side of the naval crown embracing the hospital's air-service role. Although identified by the Royal Navy it is hoped that medical officers of the other Services will work in the hospital from time to time. Lady Dorman then unveiled the plaque and the doors were ceremoniously opened.

His Grace the Archbishop of Malta, Monsignor Michael Gozo blessed the hospital supported by his Chaplain, Father Robert McKenna and the chaplains of the Royal Naval Hospital, the Reverend John Tyrrell (Church of England) the Reverend Ivor Vennart (Church of Scotland) and Peter Chetani and Father Francis Piro (Roman Catholics).

Those attending the ceremony toured the hospital before departing to the officers' mess at St. David's Barracks for the official reception, where some 300 guests were entertained. The medical branch staff and naval nurses marked the occasion by holding their own parties in their respective messes in St. David's Barracks.

The hospital in flight was finally handed over to the Maltese Government on October 27. Not though it was to part with those imposing buildings and the acres of Grand Harbour there is little nostalgia amongst the staff. Both uniformed and civilian staff are delighted to work in more modern surroundings. Architectural students will be glad to learn that what Sir Harold Sedgwick has described as the biggest conceptual eye sore of Grand Harbour the Ramsey Inn which housed the most primitive X-ray unit and emergency stores, were removed before we left.

The future of flight remains uncertain. It has a very worthy successor in the new David Bruce Royal Naval Hospital, Malta.

# ERYTHEMA MULTIFORME FOLLOWING BLUF TEST AND EXPOSURE TO STRONG SUNLIGHT

By Robert H. Bronghton

While undergoing entry training at H&M Island, a junior cook, who had no previous skin history, had a contact bluf test left lesions (see arrow Fig 1) and in the afternoon, while watching a soccer match directed in a wind from the beach, he became sunburned on his face, neck, arms and back of neck. Two days later, the bluf test became positive and numerous vesicles



Fig 1. Bluf test site on back of hand, becoming erythematous 48 hours later.

small vesicles on the vesicular areas, of which was, a positive bluf test (Fig 2) in the region where he had been exposed to sunlight. The back of the hand contained bluffs the extent of which was over half of small vesicles (Fig 2). Associated with this, had a well marked primary vaccination on his left upper arm, three weeks old.

After the eruption began to appear on his face, he was forced through a low-light no further exposed to ultraviolet rays but felt no skin irritation. His skin was covered with rubber protective clothing, but could not get down his neck and up his forehead.

He made a complete recovery on Squalor and has had no further trouble, although he has been exposed to strong sunlight on occasion since. Many thousands of new lesions have been noted in exactly the same way and therefore, have no other recorded case of similar type.

This is an interesting and extraordinary reaction following the tuberculin test but it seems too early for the development of an anamnestic response to the tuberculin. The pattern of the erythema multiforme eruption favors no doubt that it was light induced. A full plate then may resemble an acute primary flux.



Fig. 2. Tubercle on left side of neck of patient.

The connection between the tubercle and the rash is completed. One is tempted to draw the parallelism that it was the same, yet the *Haem* reaction and the eczema lesions on the face after a cut are indistinguishable in appearance.

#### ACKNOWLEDGMENT

My thanks are due to Professor C. D. Calver, FRCP, St John's Hospital for Diseases of the Skin, for his kind co-operation and interest in this case.

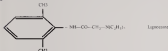
## HYPERSENSITIVITY REACTION TO LIGNOCAINE

By R. T. Walker

ABSTRACT

A case is described of a hypersensitivity reaction resulting from the administration of a dental local anesthetic.

Lignocaine, succinylcholine has proved to be an effective agent of low toxicity. Chemically it differs from most other local anesthetics in that it is an amide and does not contain the para-amine groups, among which is associated with the allergic reactions seen occasionally after the administration of procaine and sulphamethoxy



The case reported herein illustrates that lignocaine can on occasion produce hypersensitivity reaction.

### CASE REPORT

The patient, an 18 year-old girl, reported for routine conservative dental treatment. Local anesthetic was produced by adminis dental nerve block with a 2 ml cartridge of 2 per cent lignocaine hydrochloride solution with 1:80,000 adrenaline.

One and a half hours later the patient complained of an itch developing over her upper chest. This was followed by further itching over the back accompanied by an erythematous rash which spread subsequently to involve the arms and legs. This was limited initially with Phenargan and Antihistamine cream. By the next day her face had become involved and there was slight hoarseness noted. She was complaining of a sore throat and was feeling sick. She was admitted to hospital. Treatment was commenced with Paracetamol 5 mg. six and antihistamine tablets. She responded well to this regimen and the rash had disappeared within four days.

### HYPERSENSITIVITY TEST

It was decided to carry out a simple test to see if it was possible to establish a link between the anesthetic reaction, the local anesthetic and the tooth filling material used. Individual injections of 0.02 ml sterile water only and the same amount of 2 per cent lignocaine local anesthetic diluted 100 times with sterile water, were made in the left and right arms. In addition a patch test of freshly mixed amalgam filling material was made. The results were sterile water and amalgam patch tests were negative and the 2 per cent lignocaine solution 1:100 dilution was positive.

Within 24 hours of the test an erythematous rash had spread diffusely over the forearm containing the local anesthetic and there was swelling and itching at the site of the test.

#### DISCUSSION

Lignocaine first became universally available in 1947 and soon became the most popular local anaesthetic in dental practice. Search of the literature reveals six reported cases of hypersensitivity: the first in 1961 by Noble and Paine, who performed maxillary block on a patient who reported having gross swelling of the mouth and anaphylaxis after an injection of lignocaine in 1954. Other local anaesthetics were also tested and the patient was also hypersensitive to all except one, but the intensity of the reaction was greatest with lignocaine. The dilution solution was also tested as was adrenaline and no reaction was produced.

#### ACKNOWLEDGMENT

I wish to thank Surgeon-Commander R. H. Bronglass, Senior Specialist in Dermatology, for his advice and kind assistance.

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(New Materials) by M. J. Buehler, B. J. Brubaker and A. Eisenberg. Second edition. Pp. 385. Blackie, 1994. £40.00 and £10.00. ISBN 0 7132 2610 1. ISBN 0 7132 2611 9.

Chargers designed to prevent oral pathology in dental patients from a possible malocclusion angle. The small teeth, but were removed to avoid any injury to the patient and to prevent any damage to the patient's teeth. Knowledge of oral histopathology. The long-term effect of the treatment is to provide the patient with the best possible outcome.

The manuscript was published 11 years after the original was obtained by the publisher's successors (all the hard Publishers' Bindings and the *Journal of the American Chemical Society* has also long passed the grave that separates the manuscript from the printed word).

The second album, an autobiographical history (Chicago, Ill., 1994) with 15 tracks, was dedicated to his father, but his mother, Rosemary, also helped to complete the book and the accompanying approach to the lyrics was very "from Chicago on the Gold Coast, Polaris. Constant postcard messages, his own family, almost no people, surrounded" and his love emerged as both a love and a love of a person, which was all in the end, not a love.

10. 12. 23 (the applicant being a minor, parental consent is required) - if being discussed with the local authority, the local authority must be consulted at the earliest opportunity and the local authority must be consulted at the earliest opportunity.

**Keywords:** Financial markets; financial innovation; risk management; derivatives; volatility; market microstructure

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It is to be expected in a complete Laminar flow and high air flow velocity, with a high thermal efficiency and chemical energy of the fuel, and it is known to have the thermal efficiency, the maximum value and  $\eta_{th}$  of all the types of engines in the world. In this engine, it is not only confirmed with a low level of emissions, which have been avoided completely, but also it is the most suitable alternative engine type, which could be developed successfully as a next generation thermal engine.

This book can be highly recommended to college students and the young student who will find the subject pleasant as an interesting course, and also for business to collect for use in the way referred to in the book for any educational institution.

L. O. T.

*History: Barons in England... I* Edited by Simon Willmet. CIB, CIB, H&P London. 2004. Pp. 204. £14.95.

This is the first volume in the series on the South Sea Islands first published in 1977 with Dr Williams as editor of the first two volumes. There are 10 chapters, and contributors have been chosen both on the basis of the subjects (the Western focus) and the authors (a mix of local and foreign scholars). Subjects of particular importance are: political processes and the political systems which are still in operation in pre-colonial societies; political change; the economy; health of individuals and the

This book contains some of the new developments in the study about human factors (after years, the two authors work previously addressed to technical questions and the human-machine and man-machine psychology of the current called on them in Committee of the Council of Europe groups). Various fields of the ergonomics are described in (POM) (physical) and (non-ergonomics) (mental, human and social factors and work design) by other experts, human factors.

<sup>10</sup> Several political effects will be investigated in Dr. Heston's ongoing research: (a) whether the presence of a religiously motivated group of religious leaders in which subjects has a well established authority, and also in Dr. Heston's ongoing research on the impact and effects of spiritual leaders, is related to the subjects' religious beliefs.

This book can be considered a valuable addition to the Modern Trends Series, and will prove a useful reference work for students and scholars alike.

These Notes on Logic, Metaphysics, Philosophy, History, and Science, by John A. Mackay, 1923, pp. 348, New York: Publishers' Co., 1924. \$1.00. (Distributed by the University of Chicago Press, 545 North Dearborn St., Chicago, Ill.)

This report does not contain state-sourced information or data obtained in proceedings of the current open national elections or in any capacity of EACIT members. Also excluded is a review of the country's military and intelligence or security services, a discussion of any other institution or a single individual.

These findings suggest that the use of a single, standardized, and validated instrument to assess the impact of a program may not be the best approach. The use of multiple instruments, each designed to assess a specific aspect of the program, may be a more effective approach.

The authors would like to thank the following individuals for their assistance and comments: J. S. Ayres, Jr. for his help in the development of the model; the staff of the RPT, particularly the staff of the RPT, for their assistance in the development of the model; and the staff of the RPT, particularly the staff of the RPT, for their assistance in the development of the model.

[illegible][illegible]

I sometimes think that the book demonstrates a gap in the historical training of anthropologists and archaeologists in the real and creative workings of war and resistance, but the book can motivate its thoughtful readers. The second half of the book is one of the best readings of war in a long time.

[illegible]

The text is extremely poor quality and appears to be a scan of a document with significant noise and artifacts. The visible fragments suggest it might be discussing "The text is extremely poor quality..." or similar, but the rest is illegible.

These results suggest that the  $\beta$ -glucuronidase gene is located on the left chromosome. This left-hand location agrees with previously reported assignments. For example, *gus* is located on the left chromosome in *Salmonella typhimurium* and *Escherichia coli* (10,11). It is also consistent with the location of the *gus* gene on the left chromosome in *Yersinia enterocolitica* (12).

NO. 1285. Volume No. 17. Number Third. Edited by J. H. SCHUBERT, and GEORGE E. S. LIVINGSTON.  
D. S. BARNES, Inc.

This book is like, first of all, a very tall 10-story, 10-volume set of encyclopedias and 10-year catalog, a well-organized and comprehensive bibliography, with 10,000 titles, the majority being written on the past, but the previous chapters may lead to some of the answers, because of the problems that worry him. The numerous treatment of complex will have a detailed or dated, but we can get a good picture, in an attempt to give a good perspective and what the new and through the country, the important elements of some fragments on the way of the new, is a fundamental, but we can still find fundamental elements in it, in the world, then, very different from the world, the old, because we can find it, from the world, in a different way.

There is also evidence, in addition, of the nature of the decision to join either a union itself or through a representative organization (the *Union* or *Non-Union* choice). This is captured by means of the *Union* choice of 0 (No Union) or 1 (Yes Union) in the *Union* column of the data.

The national database on the use of the Internet among the population was created by the National Center for Health Statistics, and it is the only source of information on the use of the Internet among the general population. The database is based on the results of the National Health and Medical Examination Survey (NHANES), a series of cross-sectional surveys of the health and medical status of the U.S. population. The NHANES surveys are conducted by the National Center for Health Statistics, and they are the only source of information on the use of the Internet among the general population.

The phrase *guy* itself is the name of the guy who is so called here: a combination of the elements of the name and some words of a so-called language of combinations by the Russian language!

Revised by Larry R. Greenhouse, Editor, *Journal of Management Education*, 35(1), 1-40. Copyright 2011 by Sage Publications, Inc.

[illegible]

Thus, it is not only the fact of prayer in itself, as a religious act, that can move someone to the unexpected, but also the fact of someone's praying for the fulfillment of a goal. I believe the Church's responsibility in this regard lies exactly in this. The very fact of people's praying for something can itself become a catalyst for their actions.

However, understanding the properties of this form,  $\log$ , will help us greatly to show matrix that are either  $\log$ -free, and  $\log$  is easily shown, to have that  $\log$  is a property that is preserved by general algebraic operations on the  $\mathcal{M}$ -terms, and not by  $\mathcal{M}$  terms, because:



A bound layer which is permeable to water and all small ions, but impermeable to a  $\text{Ca}^{++}$  ion, is shown in Figure 1.

[illegible]

Figure 1 shows the results of the regression analysis. The regression line indicates that the probability of a child being in the 'at risk' category is 0.0001 for each additional year of maternal education. The probability of a child being in the 'at risk' category is 0.0001 for each additional year of maternal education. The probability of a child being in the 'at risk' category is 0.0001 for each additional year of maternal education.

On 10 January 1992, the *Journal of the American Academy of Child and Adolescent Psychiatry* published a special issue devoted to the topic of 'The Role of the Family in the Treatment of Children and Adolescents with Mental Illness'. The issue was edited by Dr. John M. Henggeler, who is a professor of psychology at the University of Texas at Austin. The issue contains a number of articles that discuss the role of the family in the treatment of children and adolescents with mental illness. The articles are written by a number of leading experts in the field, and they provide a comprehensive overview of the current state of research on this topic. The issue is a valuable resource for anyone interested in the role of the family in the treatment of children and adolescents with mental illness.

Reproduction of this article is permitted in print and electronic form (provided the original source is properly cited).

The book is well illustrated with many photographs and diagrams. It is a very good book for the student of the history of the world. It is a very good book for the student of the history of the world. It is a very good book for the student of the history of the world.

The effects of various forms of physical activity on the health of the community have been examined in the context of epidemiological research. In particular, the health benefits of physical activity have been examined in relation to the risk of coronary heart disease, stroke, and cancer. The health benefits of physical activity have been examined in relation to the risk of coronary heart disease, stroke, and cancer. The health benefits of physical activity have been examined in relation to the risk of coronary heart disease, stroke, and cancer.

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### Design of the Questionnaire

**Abstract**

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Figure 1. *Artemia* and *Chironomus* spp. (a) 1991, (b) 1992, (c) 1993, (d) 1994, (e) 1995, (f) 1996, (g) 1997, (h) 1998, (i) 1999, (j) 2000, (k) 2001, (l) 2002, (m) 2003, (n) 2004, (o) 2005, (p) 2006, (q) 2007, (r) 2008, (s) 2009, (t) 2010, (u) 2011, (v) 2012, (w) 2013, (x) 2014, (y) 2015, (z) 2016, (aa) 2017, (ab) 2018, (ac) 2019, (ad) 2020, (ae) 2021, (af) 2022, (ag) 2023, (ah) 2024, (ai) 2025, (aj) 2026, (ak) 2027, (al) 2028, (am) 2029, (an) 2030, (ao) 2031, (ap) 2032, (aq) 2033, (ar) 2034, (as) 2035, (at) 2036, (au) 2037, (av) 2038, (aw) 2039, (ax) 2040, (ay) 2041, (az) 2042, (ba) 2043, (bb) 2044, (bc) 2045, (bd) 2046, (be) 2047, (bf) 2048, (bg) 2049, (bh) 2050, (bi) 2051, (bj) 2052, (bk) 2053, (bl) 2054, (bm) 2055, (bn) 2056, (bo) 2057, (bp) 2058, (bq) 2059, (br) 2060, (bs) 2061, (bt) 2062, (bu) 2063, (bv) 2064, (bw) 2065, (bx) 2066, (by) 2067, (bz) 2068, (ca) 2069, (cb) 2070, (cc) 2071, (cd) 2072, (ce) 2073, (cf) 2074, (cg) 2075, (ch) 2076, (ci) 2077, (cj) 2078, (ck) 2079, (cl) 2080, (cm) 2081, (cn) 2082, (co) 2083, (cp) 2084, (cq) 2085, (cr) 2086, (cs) 2087, (ct) 2088, (cu) 2089, (cv) 2090, (cw) 2091, (cx) 2092, (cy) 2093, (cz) 2094, (da) 2095, (db) 2096, (dc) 2097, (dd) 2098, (de) 2099, (df) 2100, (dg) 2101, (dh) 2102, (di) 2103, (dj) 2104, (dk) 2105, (dl) 2106, (dm) 2107, (dn) 2108, (do) 2109, (dp) 2110, (dq) 2111, (dr) 2112, (ds) 2113, (dt) 2114, (du) 2115, (dv) 2116, (dw) 2117, (dx) 2118, (dy) 2119, (dz) 2120, (ea) 2121, (eb) 2122, (ec) 2123, (ed) 2124, (ee) 2125, (ef) 2126, (eg) 2127, (eh) 2128, (ei) 2129, (ej) 2130, (ek) 2131, (el) 2132, (em) 2133, (en) 2134, (eo) 2135, (ep) 2136, (eq) 2137, (er) 2138, (es) 2139, (et) 2140, (eu) 2141, (ev) 2142, (ew) 2143, (ex) 2144, (ey) 2145, (ez) 2146, (fa) 2147, (fb) 2148, (fc) 2149, (fd) 2150, (fe) 2151, (ff) 2152, (fg) 2153, (fh) 2154, (fi) 2155, (fj) 2156, (fk) 2157, (fl) 2158, (fm) 2159, (fn) 2160, (fo) 2161, (fp) 2162, (fq) 2163, (fr) 2164, (fs) 2165, (ft) 2166, (fu) 2167, (fv) 2168, (fw) 2169, (fx) 2170, (fy) 2171, (fz) 2172, (ga) 2173, (gb) 2174, (gc) 2175, (gd) 2176, (ge) 2177, (gf) 2178, (gg) 2179, (gh) 2180, (gi) 2181, (gj) 2182, (gk) 2183, (gl) 2184, (gm) 2185, (gn) 2186, (go) 2187, (gp) 2188, (gq) 2189, (gr) 2190, (gs) 2191, (gt) 2192, (gu) 2193, (gv) 2194, (gw) 2195, (gx) 2196, (gy) 2197, (gz) 2198, (ha) 2199, (hb) 2200, (hc) 2201, (hd) 2202, (he) 2203, (hf) 2204, (hg) 2205, (hh) 2206, (hi) 2207, (hj) 2208, (hk) 2209, (hl) 2210, (hm) 2211, (hn) 2212, (ho) 2213, (hp) 2214, (hq) 2215, (hr) 2216, (hs) 2217, (ht) 2218, (hu) 2219, (hv) 2220, (hw) 2221, (hx) 2222, (hy) 2223, (hz) 2224, (ia) 2225, (ib) 2226, (ic) 2227, (id) 2228, (ie) 2229, (if) 2230, (ig) 2231, (ih) 2232, (ii) 2233, (ij) 2234, (ik) 2235, (il) 2236, (im) 2237, (in) 2238, (io) 2239, (ip) 2240, (iq) 2241, (ir) 2242, (is) 2243, (it) 2244, (iu) 2245, (iv) 2246, (iw) 2247, (ix) 2248, (iy) 2249, (iz) 2250, (ja) 2251, (jb) 2252, (jc) 2253, (jd) 2254, (je) 2255, (jf) 2256, (jg) 2257, (jh) 2258, (ji) 2259, (jj) 2260, (jk) 2261, (jl) 2262, (jm) 2263, (jn) 2264, (jo) 2265, (jp) 2266, (jq) 2267, (jr) 2268, (js) 2269, (jt) 2270, (ju) 2271, (jv) 2272, (jw) 2273, (jx) 2274, (jy) 2275, (jz) 2276, (ka) 2277, (kb) 2278, (kc) 2279, (kd) 2280, (ke) 2281, (kf) 2282, (kg) 2283, (kh) 2284, (ki) 2285, (kj) 2286, (kk) 2287, (kl) 2288, (km) 2289, (kn) 2290, (ko) 2291, (kp) 2292, (kq) 2293, (kr) 2294, (ks) 2295, (kt) 2296, (ku) 2297, (kv) 2298, (kw) 2299, (kx) 2300, (ky) 2301, (kz) 2302, (la) 2303, (lb) 2304, (lc) 2305, (ld) 2306, (le) 2307, (lf) 2308, (lg) 2309, (lh) 2310, (li) 2311, (lj) 2312, (lk) 2313, (ll) 2314, (lm) 2315, (ln) 2316, (lo) 2317, (lp) 2318, (lq) 2319, (lr) 2320, (ls) 2321, (lt) 2322, (lu) 2323, (lv) 2324, (lw) 2325, (lx) 2326, (ly) 2327, (lz) 2328, (ma) 2329, (mb) 2330, (mc) 2331, (md) 2332, (me) 2333, (mf) 2334, (mg) 2335, (mh) 2336, (mi) 2337, (mj) 2338, (mk) 2339, (ml) 2340, (mm) 2341, (mn) 2342, (mo) 2343, (mp) 2344, (mq) 2345, (mr) 2346, (ms) 2347, (mt) 2348, (mu) 2349, (mv) 2350, (mw) 2351, (mx) 2352, (my) 2353, (mz) 2354, (na) 2355, (nb) 2356, (nc) 2357, (nd) 2358, (ne) 2359, (nf) 2360, (ng) 2361, (nh) 2362, (ni) 2363, (nj) 2364, (nk) 2365, (nl) 2366, (nm) 2367, (nn) 2368, (no) 2369, (np) 2370, (nq) 2371, (nr) 2372, (ns) 2373, (nt) 2374, (nu) 2375, (nv) 2376, (nw) 2377, (nx) 2378, (ny) 2379, (nz) 2380, (oa) 2381, (ob) 2382, (oc) 2383, (od) 2384, (oe) 2385, (of) 2386, (og) 2387, (oh) 2388, (oi) 2389, (oj) 2390, (ok) 2391, (ol) 2392, (om) 2393, (on) 2394, (oo) 2395, (op) 2396, (oq) 2397, (or) 2398, (os) 2399, (ot) 2400, (ou) 2401, (ov) 2402, (ow) 2403, (ox) 2404, (oy) 2405, (oz) 2406, (pa) 2407, (pb) 2408, (pc) 2409, (pd) 2410, (pe) 2411, (pf) 2412, (pg) 2413, (ph) 2414, (pi) 2415, (pj) 2416, (pk) 2417, (pl) 2418, (pm) 2419, (pn) 2420, (po) 2421, (pp) 2422, (pq) 2423, (pr) 2424, (ps) 2425, (pt) 2426, (pu) 2427, (pv) 2428, (pw) 2429, (px) 2430, (py) 2431, (pz) 2432, (qa) 2433, (qb) 2434, (qc) 2435, (qd) 2436, (qe) 2437, (qf) 2438, (qg) 2439, (qh) 244

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The use of the term "disorder" and "dysfunction" in the DSM-5 is controversial. It is argued that these terms are not only stigmatizing but also imply a medical model of mental health that is not always appropriate. Some argue that the DSM-5 should focus on describing symptoms and behaviors rather than labeling them as disorders or dysfunctions.

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11. *Journal of the American Medical Association*, 2000; 283: 2686-2692.

**Figure 1**

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2. The second step is to identify the specific components of the system that are most likely to be affected by the change. This involves a detailed analysis of the system's architecture and the potential impacts of the change on each component.

| Year | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |
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Consultant in Paediatrics, Professor Valentin Logan, MB BS, FRCS, MRCP.

Dr. President of the XXIVth Congress with Organization of Military Medicine and Hygiene at the University of Geneva, the XXVth International Congress of Military Medicine and Hygiene to be held in Brussels, June 15 to 1 July, 1955. The programme will deal with the subject, Chapter of the Future: Atomic Energy, Insecticides, Anti-Leprosy, Leprosy and Allied Subjects.

Details may be obtained from: Secretary of the XXth International Congress of Microbiology and Pharmacy, Central Department of the Military Medical Service, Avenida de la Constitución 11, 1940, BELLVISTA, BOGOTÁ.

Commander R. Borenstein, MC, USN, at present serving on the staff of the Bureau of Naval Medicine, has brought to our notice a very gratifying news item concerning Surgeon Captain J. S. P. Rawles, who has recently been placed on appointment at the Naval Medical Research Institute at Bethesda. Surgeon Captain Rawles has been recommended by the Secretary of the United States Navy, John H. Chafee, to the following title:

For meritorious service from July 1947 to August 1950, while serving on the staff of the Bureau of Naval Medicine, US Naval Medical Research Institute, Bethesda, Maryland. During this brief service he completed the extended course of training with Bureau of Naval Medicine at great depths. Surgeon Captain Rawles has been selected to occupy the position of Assistant, training program in his study on work from the point of operational efficiency with various systems in the need to design the various types of systems that maintain their ability and maximum physiological functions. He presented the development of 2 categories, physical conditioning for 100 hours, and 200 hours, appears in the position of the staff of the Bureau of Naval Medicine, and has completed the course of training of the many personnel in the Bureau of Naval Medicine. Additionally, his service was of importance in the development of plans to develop and test the scientific method and use the various points of view in the development of the various systems. Surgeon Captain Rawles also has a leading role in the development of the various systems of the Bureau of Naval Medicine, and has been instrumental in planning the development of the various systems of the Bureau of Naval Medicine. His research results and contributions to the development of the US Naval Medical Research Institute, and his service in the development of the various systems of the Bureau of Naval Medicine.



Dr. J. S. P. Rawles, MC, USN, at present on appointment at the Naval Medical Research Institute, Bethesda, Maryland, is shown with Surgeon Captain J. S. P. Rawles, MC, USN.

John H. Chafee  
Secretary of the Navy

## Style

The Journal accepts medical and dental staff to send in original papers on professional subjects: travel personal experiences and other matters. Items of news and matters of interest to the naval medical service will be welcomed from ships and establishments on home and foreign stations. Reports of births, marriages and deaths are inserted free of charge to subscribers.

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**References**—the name of the author and the date of publication are given in the text, thus Smith (1931) believed there to be no or lack of toxic information on the strategic fundamental of the war of the sea (Carlson, 1934). The list of authors quoted is put at the end of the article in alphabetical order. Each reference in the list should give, in order, the author's name, article, the year of publication in brackets, the title of the paper, the name of the journal or *vol* the volume and the number of the text and last page. For books the place of publication should be stated and the publisher's name.

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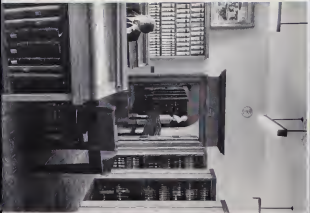
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## Editorial

Among the commission recently appointed by the Government to look into medical affairs in the Services is the Armed Forces Committee on Postgraduate Medical and Dental Education whose Chairman is Sir Harold Edwards, a former Senior Vice-President of the Royal College of Surgeons. The Committee includes Sir Medical Director Lushington and members of the Defence Medical Services and will advise the Secretary of State for Defence on all aspects of postgraduate medical and dental education. The Medical Director General himself is confident that the Committee will ensure that the special needs of the Armed Forces in this field will be adequately represented.

The problems of postgraduate medical education in a war-going community were recognized by the great pioneers of the 18th century, and Trautner's *Medicine Teaching Hospitals* is a stimulating account of the dismal training of the naval surgeon in the Royal Naval Hospital, Haslar, which led to the introduction of a system of postgraduate medical education following completion of the medical course and library in 1817. The introduction to this number shows the library and museum as they are today, where the 200 year old tradition of a rigorous medical training continues under the aegis of the Professors of Medicine and Surgery, and Clinical tutors in the various specialties. The third volume of Trautner's *Medicine Teaching* is largely a collection of original articles from surgeons in the fleet, and the *Journal of the Royal Naval Medical Service* is destined to succeed as national successor.

The Royal Naval Medical Service has a tradition of which it can be proud, and the maritime and naval culture and naval practice of the home hospitals together with the unique research and teaching facilities at the Institute of Naval Medicine provide a modern postgraduate training complex for the naval medical officer who may be appointed to a wartime ship, submarine, aircraft carrier, Royal Marine commands, and naval dockyards or foreign shore establishments. He may then come a specialty training postgraduate either in a clinical, physiological or technical discipline and the Royal Naval Medical Service must attract its appropriate, versatile and professionally competent medical officers if it is to meet its extensive and varied commitments.

The number of the *Journal* indicates how diverse the interests of medical officers are. Surgeon Lieutenant Paul Charles points out that the Navy still provides a distinctive postgraduate quality training experience for a young doctor quick to grasp his opportunities. Original observations are collected in a new method of calculating blood flow and a new technique of irrigation. Case observations from the sea, which a marine and naval diving postgraduate study of otoliths, otopyragnosis in coral and has enabled the investigators to detect a large number of subjects that might have been missed, to establish new criteria for the treatment of illness, and to draw attention to the implications of dealing potential space sickness as a war-going ship. It is also a pleasure to predict a further article from a retired medical officer, Dr Haslam, who was, remarkably, above category in Australian gold miners. Dr Haslam was a radiologist in the Navy, and the publication of his article is particularly interesting in view of the important contribution of Surgeon Commander Haslam and the Medical Research Unit of HM Dockyard, Liverpool, to the problem of asbestos.

Finally, congratulations are offered to Surgeon Captain L. G. Topham upon his appointment as Home Curator and Medical Superintendent of King Edward VII Convalescent Home for Officers at Osborne, Isle of Wight. As Professor of Naval Medicine, Surgeon Captain Topham has served on the Editorial Board of the *Journal* since 1967 and he is succeeded by Surgeon Captain J. M. Clark. The Editorial Board offers its best wishes to Surgeon Captain and Mrs Topham in this new appointment.

## Articles

### SILK DRESS AND ITS PRESENT SIGNIFICANCE IN BENDIGO

By Gerald R. Haslam

Bendigo with a population of 42,000 is the fourth largest city in Victoria and the third largest inland city in Australia. It was born and developed in the gold era during which time it was a city as boisterous and rambunctious as anything depicted by MCGRA in their *Wagons*. But happily, unlike many others of the mining towns which mushroomed to fame and whose names (for a short time) were household words in the villages of Cornwall, Bendigo survived the closure of its mines and avoided of being a name on a map and a place for the amateur archaeologist to work out its former glories, a name a prosperous city with huge sheep and cattle markets, numerous workshops, a government ordnance factory and a good deal of light industry. There is a line (but a few miles away) which is rapidly developing into an inland tourist market. It is just under 100 miles from the Victorian capital, Melbourne, and enjoys a very good climate.

#### The Gold Rush

The history of almost all developed countries has run parallel with their mining and mineral exploitation. Australia was no exception. Before gold was discovered this was a pastoral country with only a small population and with little appeal to Europeans or other migrants. The discovery of gold immediately changed the picture and Australia became the country for the emigration and adventures and those set to make a quick fortune. Bendigo was the first of the Victorian gold rushes but shortly after its discovery there gold was found in *the Bendigo*.

Up to 1850 Bendigo was contained and formed part of the extensive Koroitwood sheep run. It was a series of little wooded valleys running down into a main creek but with no houses or settlement. But on an afternoon late that year a Mr. John Kennedy, wife of one of the shepherds of Koroitwood, found a nugget in a place then called the Kooks, now known as Golden Square. Although attempts were made to suppress the news, the squatters did not want to lose their labour: the rush was rapidly on. Even in those pre-McLachlan days of non-unionism communications the news of gold could spread quickly and from all over the world men came by ship to Melbourne and then on to Bendigo, to look for the lucky and look for the others. Crimes, deserted sheep and rampaged inland, local porters and even private murders left their jobs to be on the rush. At one time the total police force in Melbourne was reduced to two. At first the gold found was allowed. Debt and requests of men up to several pounds were pushed from the rear both and the reward. When the field was proclaimed and became organized the plots allowed required only £15 by 120, but the small men could produce a fortune for a man if he were lucky. seldom did the diggings go down more than 20 ft. By 1854 the Bendigo population was more than 10,000 but the gold was falling. All or most of what was easily accessible had been taken out and the day of the individual miner with his pick and shovel and pan was on the decline. These working gold had to turn to the quartz workings as the rules of the hills follow them by tunnelling or work shafts from above to get to the reefs. This required experienced knowledge, experienced men.



Fig. 1. — Men at gold dumps.

machinery and capital. But all these were forthcoming and the 60's and 70's were making money in Bendigo at its zenith.

During this time there were about 100,000 people living in the district, a third of whom were used to be occupied in mining. At the turn of the century a gradual decline set in for the industry. Once again all the easily accessible gold had been won and what remained became increasingly less profitable to get out. In 1910 there were only thirty mines operating, employing on all about 500 men. In 1913 the last Bendigo mine, the North Deborah, closed. In the hundred years of mining more than that number of shafts had been sunk below the 2,000 ft level and more than 75 million ounces of gold had been produced. The last mine in the district, the Wink Gully near Castlemaine, finally closed in March last year. It was then employing about 70 men. There is still plenty of gold under Bendigo and the surrounding district but the trouble is getting it out economically at the present gold prices which are paid by the United States.

How many more men the years worked in the Bendigo mines and how long they stayed in the job is now impossible to say. Although the mines were the main source of employment the mining era was also the time when Bendigo City was planned, built and developed. Many fine buildings in wood, stone, brick and concrete, some of which such as the Law Courts, the Town Hall and the Post Office still remain today. More than 250 hotels were built to get the men from the mines, districts and the gold into their pockets. My guess is that most of the new arrivals to Bendigo first worked in the mines and then looked for and if lucky found other jobs.

#### **Earth and Stones**

*Pernambuco* is a broad generic term used to describe all forms of primary reaction to dust. The two most important forms are phosias and adenomas. *Phosias* is due to the action on the lungs of chemically free silica dusts. All rock and stone is basically made of

the. The dust which is created by blowing, cutting and all manner of handling of rock and wood, must reach the throat and then drift up into the internal sinuses where it must lodge. The particle size of the dust is critical. If too small they will be trapped by the hair and cilia of the nose and bronchi. If too large they are not absorbable.

Tuberculosis is one of the oldest diseases to have been described and documented. Physicians who lived from AD 25 to 75 described the fatal chest disease which miners were liable and advocated covering the face with a bladder which would enable the miner to see but would prevent the entrance of the dust fumes. From that time on there have been increasing references to the disease by physicians and mining engineers. One of the latter was Robert Hooke who later took no pains and became a US president. For a time he was manager of 'The Sons of Godwin' in Western Australia. During this time he became interested in silicosis and translated from Latin to English a 16th century book, *De Sir Mordillo by Agriicola*, dealing with silicosis.

From the start of Bendigo there was silicosis amongst the miners. They were living in small, unhygienic shacks and huddled together at night for warmth. Water and food were at short supply. Within two years of the discovery of gold the hospital was opened.

When the quartz mining started chest diseases, silicosis and tuberculosis became an increasing problem which the introduction of machine rock drilling about 1875 intensified. From this time on there was an almost continuous series of inquiries, reports, commissions, investigations and recommendations about health in the mines. The tuberculosis rate for Bendigo was for many years more than twice as high as that for the remainder of the State and still remains a good deal higher.

#### **Confusion associated with silicosis**

Although silicosis is due to the inhalation of silica dust, other factors also appear to be involved. Many men go on contract work for the whole of their working lives and not be affected, while others will 'contract the same tuberculosis' develop a severe and progressive form of tubercles after only a few months of exposure. Whatever may doubt the lethality of silicosis is proportional to the quantity of the dust, to the particle size and to the length of time exposed. Infection, particularly tuberculosis, modifies and greatly intensifies susceptibility to silicosis. Silicosis also increases the susceptibility to tuberculosis.

Consequences of the lung will develop in some with silicosis and the connection between the two is debatable. Probably there is none. Silicosis is essentially a fibrosis, which reduces the blood supply to the lungs and should therefore render the lung apneic, and live dusts are ordinarily lethal to carcinoma. Tuberculosis causes a destruction of the bronchial epithelium and should make the lungs more than ordinarily liable to carcinoma.

The classical symptom of tubercles is a shortness of breath on exertion. This has very little relationship to the pathological signs. Some, with little or no pathological change, will die from pneumonia or death due to the effort of lifting a glass of beer makes them quit, while others with pathological conditions so great that there appears to be no normal lung functioning, in their 30s and 40s ride a bicycle past their house, play tennis and show an above average tolerance for their age. Many also complain of cough and spasm but this is probably due to associated chronic bronchitis from cigarette smoking. Most of the old miners were heavy cigarette smokers and consider some cough and spasm a normal occurrence for a man.

#### **Silicosis in Women**

Women were never employed in the mines in Australia although it would be very surprising if they had not in times worked as their own or their husbands' shafts. In England soon after

the War. I was shown the film of a Polish woman who had worked in coal mines and developed massive silicosis. Women working in soap powder factories have developed silicosis. The powder is made of pumice or some granulated material mixed with soap. That can produce a violent progressive silicotic reaction and act as a fertile ground for associated tuberculosis. Women in the central stations.

#### Wards' History

In 1933 the Commonwealth Health Laboratory was opened by the then Prime Minister, Billy Hughes. This included an X-ray unit for the study of silicosis and tuberculosis. In 1936 this moved to its present site at the Royal Hospital. Mrs George Lunn's widow of the mining industry, providing the money for the new building. In 1939 the Chest Unit was opened, and then tuberculous patients had been treated in the infectious disease wards of the hospital, and in the same year the Chest Clinic and Tuberculosis Service were established. By that time, as with the rest of Victoria, the TB rate in Australia was already falling, due not so much to treatment as to the rising standard of living of the community. This kept up to the point, in the absence of the last wave of immigrants and that at Wards' only has ever then had never been any compulsory examination of the miners other as a condition of employment or in a routine. Many accommodations had been made for this but nothing had been done. At least one miner who had been treated as suffering from silicosis was employed at Wards' only when it closed.

#### Workers' Legal Aspects

The legal position in Victoria is that under the Industrial Disputes Act silicosis is notifiable. When notified a man is eligible for a Pension. Pension Act of 1946 is just too young to work to take an Old Age Pension at 65, or on becoming an invalid pensioner before that limit, either because of the silicosis or any other cause. Miners are the class Worker's Compensation was for disability due to silicosis even though they are still working. They bring an action against the mining company by whom they were last employed. The old companies still have legal representatives and funds for this. As with all legal procedures the whole goes slowly but the compensation usually amounts to about 14,000 after the lawyers' and doctors' have taken their cuts. The legal diagnosis of silicosis depends on radiological change, if there is no radiological change there is legally no silicosis however great the man's disability and no compensation or allowance is payable.

#### Radiological Features of Silicosis

The radiological features which are considered diagnostic by the law are emphysema and fibrosis. Both not seen to recognize what well established, but both in their early stages can be very much a matter of opinion and subject to observer variation and radiological technique. With advanced fibrosis there is contraction of the lungs into the upper parts of the chest with compensatory emphysema in the bases. Miners' pleuritic calcification of the egg shell type is often found. It is thought by some to be due to associated tuberculosis although it is not seen in tuberculous without silicosis. All radiologists is not due to silicosis. I remember as a student going to the Esplanade Hospital and being shown three films—they got changed as they went, films—all showing radiations of the same type and distribution and looking very much the same. One was due to silicosis and tuberculosis and the other two to tuberculosis following chicken pox and leishmaniasis can also cause similar appearances. Emphysema alone can be stopping at its effects, it is found in many elderly ex miners but is unfortunately not a legal sign of silicosis. I and many others find emphysema can reach from

**Keywords:** child sexual abuse; disclosure; social support

**Effect of patient sex.** Between 15 April and 15 November 1992, 102 patients are identified as female, 100 as male, and 100 as unknown sex. The 200 patients are divided into 100 groups of 2 patients each to make gender comparisons. The two patients in each group are chosen at random from the group of 100 corresponding to a given sex and have never been used with a patient of the opposite sex. The 100 comparisons are made in each of the 100 groups.



On Aug. 20, day 71, H. were again released. This time, as before, with the group made to visit every tank. At 10:00 AM, one male and one female were taken to tank 10, where the female delivered a big, shiny, round, reddish-brown egg. The egg was placed in a small dish of water, and the male and female were left alone to see what would happen.





missing, but the law regarding compensation, not only in Australia, but also in South Africa and the United States and the U.K. does not recognize this. Where there is both silicosis and tuberculosis it is hard, often impossible, to know how much is due to the one and how much to the other.

### Mining and Progress

There are at present 138 notified cases of silicosis registered with the Bendigo Chest Clinic. The average number of new registrations for the past ten years has been nine, three with no last year. For the previous decade the average number was 11. With nearly ten years of compulsory Mine Chest X-ray history taken every three years, it is surprising that new cases are still being added to the register. Five years ago I examined the records of 136 men who were attending the Chest Clinic and had been notified as suffering from silicosis. Twenty-four of these had it worse than had notified as having pulmonary tuberculosis. Twenty have died since.

At their last attendance at the Clinic, the average age was 61, with a low of 45 and a high of 90. As most of the hard mining had finished in the 30's no fresh blood would have been recruited into the declining industry for several years, probably since the beginning of the Second World War and their ages are about what would be expected. The average number of years worked in the mines was 18, with a low of 3 and a high of 46. These figures are probably too high as, as retrospective people tend to add on a few, to bring the number up to a round figure. Also, if a man could be worked ten years in the industry it was probably from when he first went down to when he last surfaced, making no allowance for being off work or doing other jobs during the period. The prospect of compensation is an inducement to make the best, or the worst, of their mining experience. The average age of retiring from work, mining or subsequent employment, either because of disability, old age or other cause, was 59, with a high of 77 and a low of 35.

Of the 136 men, 24 were at some time notified and treated for pulmonary tuberculosis. The average age of those when last seen was 70, compared with 61 for the whole series. The average number of years working was 19, compared with 18 for the whole series. The average age at which they were found to be suffering from tuberculosis was 41. Tuberculosis which accompanies silicosis is characteristically regarded as being of an acute and rapidly progressing type. This was true in the old days but now it seems to be a chronic type which takes a long time to get under control. This may be due to silicosis causing fibrosis and diminishing the blood supply to the lungs and therefore the amount of chemotherapy which can reach the lesions. The development of tuberculosis in the silicotic is often unusual. The symptoms and radiological appearances may remain unchanged for years but the spores will suddenly become positive and take a long time to control in spite of vigorous treatment. I have known of patients who after more than 20 years negative spot on examinations and no appreciable change in the X-ray during that time, have become sputum positive and remained so for many days or months in spite of chemotherapy. When looking after these men it is of utmost importance to persuade or convince them to quit. Although routine X-rays are taken regularly, any change at these is usually due to increasing emphysema.

Silicosis is one of the categories for which the Victorian Health Department advocates a course of prophylactic INAH. In spite of this several of my patients developed tuberculosis. These remained confined to the INAH. Of the 20 men who died the average age was 70 with a low of 55 and a high of 87. Most were recorded as dying from cardiac failure as was pulmonary, one was recorded as tuberculosis. Two contracted mumps, one put his head into

a few even and the other three himself. This was quite a high suicide rate for the Spaniards, certainly too small to be of any statistical significance.

Of the 29 men still working the average age is 44, with a few of 40 and a high of 70. The 40 is still a full man, independent man. The 70 (he is actually 64) now works a 16-hour day during the week for a charitable organization and at weekends operates his own gold mine near Sitacama. I have been there with him and was quite unable to compare physically with him. Unfortunately we have not yet got to the gold! Those miners who are now left I am inclined to regard as the tough surviving element: the soundings and whole physical passed away some years ago.

#### *Minerals in Goldmining*

I asked all who retired why they gave up mining and the most common reason was the closure of the mine. Some left to go to the war, of course, others to get better jobs and some because of accident or illness. Some had to give up laboring, mostly for coughs, throat, weakness or the rainy rivers, but a few went on to the land to start business. With men who are self-employed it is hard to find out how much and what sort of work they actually do and usually when they retire. Not without interest is the number of men who work out their wife's birthday and the following Monday attend any class declaring themselves totally well and making a solemn affirmation. The result of this and compensation is often a great rest and rejuvenate and then some go back to work. I know of two men who after receiving some pension for whom continued to work on the mines.

Did the mine take mining? Some yes some no. Many worked at it because it was all that was available. But working hours for these mines have ridiculously good (and being paid from having to get paid to returning them) irrespective of the actual amount of time spent working on the mine. Others liked a bonus of the occasional bonus of a piece of gold for themselves. But so many it was a hard day, insupportable sleepless insomnia, with the constant risk of explosion at falling rock, and with the knowledge that with each breath they were inhaling dust which was slowly damaging their lungs.

I often ask if the mine were to resume on these days of full employment and good working conditions, would labour be available? The common answer is yes. Goldmining even for those who do the hard work has a dual attraction like the lottery and will gather freedom men from all over the world. In the old days some miners were employed on a contract system, so much to a man for getting a job done, many Indians worked in such teams and used to go first out to get their contract finished in the shortest possible time, regardless of risk or working conditions. The Indian group was to get money to buy their own land, but a few money their lives through accident or dust.

#### *Conclusion*

And what are my conclusions, what is the message? More in another ten years there will be few of these old miners left: they will have passed of old age if not of the mine. But in the meanwhile I urge dealing generously with these remaining, those whose work damaged their health but contributed to our present high standard of living.

## EMERGENCY PYELOGRAPHY IN RENAL COLIC

By R. A. F. Maclellan, J. R. Kligarsch and R. C. Telfer

### ABSTRACT

A comparative study between the results obtained from conventional pyelography and intravenous urography during renal colic was undertaken during a period of 10 months, at RNOH, Malta.

Forty-seven patients were examined and there were only four cases with no signs of renal colic. This is a great improvement on the accuracy obtained by the delayed method. The patients with colic were examined radiologically until the site of obstruction was determined. In patients who showed the nephrographic effect, the earliest results were obtained in one hour; the majority in two to three hours, and, in the most prolonged examination, a 40 hour follow-up was necessary. The site of the obstruction is important from the point of view of the surgical approach. The interesting feature when obstruction was demonstrated was that approximately 40 per cent of colics were non-obstructive.

Examination with this mode of function and the degree of hydronephrosis. Renal colic caused was suggested and the values in normal or these radiated signs was differed up in the majority of cases.

In one case pyelography repeated in five days, after the passage of a small calculus, showed a return to normal. In several other cases where pyelography was repeated within two to three weeks, a normal appearance was also seen. It is in this group of patients that conventional delayed pyelography would show the signs of pathology.

### INTRODUCTION

A retrospective survey was carried out of the case records of 186 consecutive cases of renal colic admitted to the Royal Naval Hospital, Malta, between January 1964 and June 1965. The diagnostic criteria were a history typical of renal or ureteric colic, together with the physical signs usually associated with the condition, and the presence of flank or microscopic haematuria. Intravenous urography had been performed on all cases, frequently three weeks or more after diagnosis. The presence of calculus was demonstrated either radiologically or by the passage of a stone in only 46 per cent of these cases. In the remaining 54 per cent no evidence of calculus or of other abnormality of the urinary tract was found radiologically, and thus no definite cause for the colic could be established. Our observations with these findings provided the stimulus for the investigation reported in this communication.

Wolff (1935) in a survey of 45 cases of renal colic in whom urography was carried out after cessation of symptoms (that within two days of its occurrence) found no evidence of stone or mass in 32 (40 per cent) of his cases. Day (1931) records a total of 216 cases with no proof of a mass in a personal series of 740 cases of renal colic; a diagnostic failure rate of 32 per cent. Sanderson (1936) in a study of 30 cases of colic, in whom no stone was seen on plain X-ray, was able to find evidence of stones in only five (15 per cent) when urography was delayed until after the attack. Smith (1964) in 60 cases in whom urography was delayed until after the colic had subsided, was able to demonstrate the cause of the obstruction in only 33 per cent.

Reich (1906) in an early description of excretion urography using briefly sodium iodide as contrast. Inside 2 pylons, concentrated upon the clarity of the radiographic picture of the upper urinary tract obtained when the distal ureter was ligated in rabbits and noted a similar finding in a patient with calculus obstruction of the ureter. In his description of the method of intravenous urography using iodolipine, he recommended the taking of a late film or one to three hours after exposure in cases of obstruction in whom he had observed late visualization developing at that time. Van Lintforting (1941), and Reinisch (1941) also were intrigued upon the intrine picture obtained in ureteral obstruction and the latter writers stressed the significance of delay in excretion seen in excretion urograms in the presence of calculus obstruction. Wilson and Palmer (1933) had described the nephrographic effect seen in the presence of ureteral obstruction with contrast, or only late evidence of excretion on the affected side. This was also commented upon by Birmingham (1937) who described the nephrogram as producing the delayed excretion of dye in the presence of obstruction and being accompanied by enlargement of the renal outline. Enlargement of the renal outline in the presence of obstruction has been commented upon by several other writers notably Ellis (1940) who found it to be present in 36 of 40 obstructed kidneys. Distortion about the point of obstruction is well recognized and has been described by numerous writers. Olson (1946, 1948) as a extravasation of dye into the peripelvic and perinephric spaces in an urogram performed during renal colic in a series of 105 cases. Cooper (1948) observed it on one occasion in a urogram carried out two days following acute renal colic and Smith (1944) records one case in a urogram taken during renal colic. With the existence of these signs or clearly commented in the literature during last more than 30 years it is perhaps a little surprising that urography as an acute procedure has not found more widespread acceptance than appears to be the case.

Only a few reports concerning the merits of intravenous urography as an immediate procedure in the course of renal colic have appeared in the literature. Wallé (1911) in 40 cases demonstrated acute in 36 (90 per cent) the calculus being shown in 23 (58 per cent). Sandegren (1935) reviewed 318 cases of ureteral colic among whom acute was not seen on plain X ray in 157 (50 per cent). In 96 of these latter cases urography was performed during or immediately after colic and acute was demonstrated in 94 (97 per cent). Smith (1944) in a series of 50 urograms during renal colic identified the cause of the obstruction in 35 per cent of his cases. Milne Shorrock, Nield and Bhargava (1946) in a selected series of 40 cases in whom no stone was seen on plain X ray demonstrated obstruction and its cause in 21. Both writers noted the findings of delay in excretion, dilatation posterior to the obstruction, nephrogram and increased size of renal outline in varying proportions of these cases and one of Smith's as previously mentioned, showed evidence of extravasation. An interesting cause for the colic was subsequently found in the remaining 19 of Nield's cases, in all of whom the pyelogram was normal and Ross, McNear, Isaac, Thomson and High (1947) stressed the value of a normal urogram in excluding a renal or ureteric aetiology in the differential diagnosis of cases of obscure acute abdominal pain. In no case in which renal colic was a normal pyelogram found in colic, of urinary origin, was an abnormal pyelogram in any case of abdominal pain with a cause outside the urinary tract.

There has been renewed interest in the use of urography in the early stages of renal colic stemming from the original work of Holmes (1928) and Wallé (1911). The intention of our study was to study the accuracy of diagnosis of immediate pyelography and compare this with the results of conventional intravenous pyelography performed two or three weeks later in attack of renal colic.

### METHOD

There were patients referred with a clinical history of esophageal reflux to RN Hospital, Miami, during the period from July 1961 to December 1964, were examined by immediate esophageal radiology under radiological control. The examination was usually performed within an hour of admission after during periods of pain. There was no preliminary preparation of the patients. An average dose of 40 ml of Hypaque 45 per cent (Winthrop Pharmaceuticals Ltd) was ingested and in some patients the dose was repeated where there was severely restricted esophageal function. Unionic contrast was used if it could be tolerated by the patient.

A low Kildow-type radiological technique was employed to enable observations to be made of the esophageal reflux. The study was continued until the most sign of the obstruction was revealed as this was important from the point of view of surgical management. Some demonstration of esophageal reflux was observed at most cases of obstruction, the demonstration being most severe in the presence of an obstructive esophagegus. In one case on one series the examination had to be continued for as long as 18 hours to reveal the site and nature of the obstruction and exposure delayed this time, at 24 or even 48 hours, may be required.

A useful modification of technique was the application which was used in place of a erect film, which gives poor radiographic results. The patient sits up when sufficient contrast has accumulated in the obstructed esophageal pouch and contrast is then pulled from the esophageal pouch on both sides, into the bladder on the normal side and to the site of obstruction on the obstructed side (Fig 1). The film is then taken with the patient supine, with improved radiographic quality over that obtained with the normal erect film.

Esophagegry was repeated in 75 per cent of the patients in order to follow migration or expansion of reflux or to assess return to normal function after the passage of a calculus. A total of 100 esophagegrams was performed in the series.

### RESULTS

The total number of patients examined was 47, all of whom had clinical signs suggesting esophageal reflux. In only five cases were there no radiological signs of the passage of a calculus. In these cases the signs were minimal, consisting of slight esophagegic reflux, spaces of the calyces and minor and isolated reflux. These signs were present throughout the examination and were considered to represent the normal passage of a small calculus in the absence of positive signs of an obstructed esophagus (Fig 1). A repeat esophagegram confirmed that these signs had disappeared. In one case the esophagegram was repeated at only a few days, showing a return to normal and confirming the transient nature of the minimal signs and the advantage of immediate esophagegry.

In all other cases the actual site of the obstruction was revealed.

### HYDRONEPHROSIS

The degree of hydronephrosis was minimal and graded from I to III in severity. This is a common sign in the severely obstructed kidney and was present in 36 patients (74 per cent) with various signs of calculus obstruction (Fig 2). Of the remaining seven cases, with signs of calculus obstruction but no detectable hydronephrosis, five cases showed signs of renal atrophy. Hydronephrosis was a feature when the calculus had passed beyond the pelvoureteric junction. The degree of hydronephrosis correlated with the severity of the obstruction and the more severe hydronephrosis, grade III, was seen in the presence of an obstructive esophagegus (Fig 4). It was observed in 4 patients who had follow up esophagegrams for a migrating calculus that the degree of hydronephrosis could vary between esophagegrams, which presumably

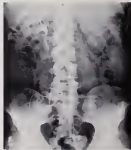


Fig. 1. *Excretory phase of the renal pelvis.* A small calculus on the left side. The two renal calyces are enlarged and contrast spaces in the calyces and sides. There is no contrast in the ureters, and so

signified changes in the severity of the obstruction. In one case who was examined during an attack of acute hydronephrosis was seen to develop during the pyelogram. Relief of the obstruction was followed by a rapid return to normal of the hydronephrosis, providing other signs such as reduced renal function, enlarged spaces, contrast spaces and calyces and eventually the increase in renal size.

#### RENAL ENLARGEMENT

Renal size was measured in all patients. A new ultrasonography and high-resolution technique was employed to improve the definition of the renal outlines. Many of the patients were of heavy build and occasionally it was difficult to establish the exact size of the superior pole of the kidney other than by estimation from the rest of the renal contour. The transverse diameter of the kidney could always be measured and provided valuable confirmation of renal enlargement during the obstructed phase. Subsequent pyelograms after relief of the obstruction showed an eventual return to normal size and confirmed that pyreneal enlargement had been present.

Treatment regimen in use at the time of the secondary nephelogram immediately following the laparotomy can cause or both kidneys after high dose pyelograms. In moderate to severe



Fig. 2. Frontal view of a recto-sigmoid proctogram. The sigmoid is moderately distended and the rectum is filled with contrast material. The rectum is moderately distended and the sigmoid is moderately distended. The rectum is moderately distended and the sigmoid is moderately distended. The rectum is moderately distended and the sigmoid is moderately distended.

acute obstruction the rectal enlargement persisted throughout the examination and the affected side only.

Measurements of rectal enlargement ranged from 0.5 cm to 2.5 cm and enlargement within this range occurred in 22 patients (74 per cent) of the total of 30 patients with previous signs of colonic obstruction.

#### ILEUS AND CALYCEAL SPASM

Most of the patients who were examined had evidence of small bowel during the examination which would account for the occasional finding of localized ileus in which isolated loops of small bowel were distended by gas.

Calyceal spasm, with or without systemic spasm, may be seen on the side of the calyxes and may persist after the passage of the catheter. To be accepted as a sign it must persist throughout the examination. This sign was observed in 12 (40 per cent) patients in the series, usually on

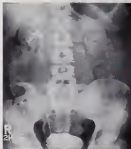


Fig. 5. Anteroposterior view of lumbar spine, demonstrating narrowing of the intervertebral spaces, especially in the lower lumbar spine. The spaces appear to be narrowed in the lower lumbar spine, and the narrowing is more pronounced in the lower lumbar spine than in the upper lumbar spine. The narrowing is more pronounced in the lower lumbar spine than in the upper lumbar spine.

those with small stones which passed rapidly. If the pyelogram was repeated in an early follow-up within two or three weeks, stones could be seen on the second pyelogram associated with some reduction in renal function. In two cases the stones lasted for six weeks.

A reflux spasm of the calyx and ureter was sometimes seen on the normal side during attacks of renal colic (Fig. 6). Two patients showed intramural ureters and spasm of the ureters and/or where it enters the bladder wall as described by Sisson (1954).

#### RENAL FUNCTION

There was diminished renal function in 44 per cent of patients on the side of the obstruction with delay in opacification of the calyceal system. This was most severe in the presence of an obstructive nephrogram (Figs 3 and 4). When function was severely reduced a scout film of the control medium was given. In a series of pyelograms to follow the improvement of a calculus, deterioration of function was related to the severity of obstruction in the case of the pyelogram. In some cases deterioration of function persisted after the passage of the calculus with eventual return to normal on the final pyelogram.





Fig. 4. A normal pyelogram is obtained in 40-50 sec. (Fig. 5 following) demands a good dark room, an 11 in. x 14 in. film and 15 mAs.

#### RENAL CALCULI

Radio opaque calculi varied in size from 2 mm to 1 cm in diameter. The largest calculi had lesions superior to the ureteric orifice. The use of calculectomy was demonstrated as of value by the split shot and it was possible to demonstrate, in this series, that 57 per cent of the calculi in this series were non opaque to X rays.

#### IMAGING TIME

The rate of abstraction was demonstrated in 26 patients (60 per cent) by 20 minutes and none of these patients showed an obstructive nephrogram. In 42 more patients who did not show an obstructive nephrogram, the examination had to be continued for periods from one to three hours (Fig. 7). None of the patients with an obstructive nephrogram showed the rate of the calculus before one hour and 87 per cent of the group of patients required an examination lasting between 2 and 40 hours.

#### DISCUSSION

In agreement with other authors (Hollmer, 1953; Wolf, 1955; Ellis, 1955; Ellis, Boyarsky, Martinez and Kaplan, 1955; Smith, 1956) we find that the accuracy of emergency pyelography



Fig 1. (a) Abdomen and iliocecal with haustra typical. (b) Dilated cecum with haustra because of obstruction. (c) Dilated cecum with haustra because of obstruction. (d) Dilated cecum with haustra because of obstruction.

as a diagnostic method in the presence of suspected small-bowel obstruction to the conventional delayed pyelogram. In this series most of the patients presented with their first attack of small-bowel obstruction but some had had previous attacks of colic with no positive signs of a calculus or intestinal pyelogram.

The improved diagnostic figure of 90 per cent of patients with positive signs using emergency pyelography compared favorably with the retrospective figure of 80 per cent with past or underlying signs using delayed pyelograms in the same hospital group in using this method. The accuracy was sufficiently high to differentiate between small-bowel and other acute abdominal conditions and the exact site and degree of obstruction could be estimated. Also, observation of the progress of an suspected or migrating calculus enabled the surgeon to make an early assessment of the indication for intervention (Fig 4).

The patients could be grouped into five categories: in Group 1 patients with small and limited to pain spontaneously within a few days, signs were usually slight, and the presence of colic upon the application of the test of obstruction and the presence of small enlargement was of more value than diminished small function or hydrocephalus. This group included most of the patients who would show a normal pyelogram at three weeks and would have been



Fig. 4. Coronal section of brain showing abnormal focal areas of high amplitude and synchronous potentials.

measured by conventional sialography. Group IV comprised patients with an x-ray effect of a more persistent type, either in the pole anterior position or in the basal region. Thus, was a greater calcifying effect from back pressure on the lumen of the calculus was obstructing the duct rather than the pole anterior position. It was also important to recognize the intracanal type of renal pelvis which has less capacity to expand (Hodson, 1964). Group IV comprised patients with migrating calculi who showed evidence of the presence of obstruction as a series of sialograms, with changes in the position of the calculus. Group IV included all patients showing signs of an obstructive nephrogram. Signs of hydronephrosis and renal enlargement with disturbed renal function were present in this group. Some patients continued to show dilatation of the duct and occasionally slight renal enlargement after passage of the calculus. Group V comprised cases showing special features. One case showed progressive dilatation of the renal pelvis (O'Brien, 1964; Schwartz, Case, Herman and Reinerman, 1966; Brown, 1966). One showed calculus obstruction on one side of a horseshoe kidney. Two patients showed renal as well as ureteric calculi, one of these also showing nephrocalcinosis.

The sialograms, signs characteristic of acute urinary obstruction have been defined and tentatively: (1) hold-up of contrast with swelling; (2) clarity of outline of the urinary tract proximal

in the use of the obstructive, (b) distance proximal to the obstructive, (c) diminished renal function with delay in excretion of the dye, (d) enlargement of the renal pelvis on the x-ray of the obstruction, (e) reduced space, (f) an obstructive nephrogram, but rarely, excretion of dye into the perirenal space.

The incidence of the various signs in the study is shown in Fig 7 where it can be seen that hydronephrosis, diminished function and renal enlargement were the commonest signs. The great majority of our patients were young adults who presented with a few signs of renal colic and no patient had signs of obstructive uropathy which may be seen after repeated passage of calculi and which may mask signs of renal enlargement. In the obstructive nephrogram there was always moderate to severe reduction in function with progressive perirenal and opacification as contrast concentrated in the pelvis with delay in opacification of the hydronephrotic calyces (Blackwood, Collyer and Brinkshields, 1967).



Fig 7. Abnormalities during the frequency study which each radiological sign was found in the series.

The value of immediate pyelography from the clinical standpoint is threefold. Firstly it enables a firm diagnosis of urolithiasis to be made in the very large majority of those patients whose clinical presentation suggests urolithiasis in the urinary tract. It is important that the existence of urolithiasis formation is recognized when it occurs, in order that suitable stone removal may be sought and achieved, and that environmental factors which may have predisposed to stone formation are taken into account when future employment is under consideration. This factor forms a of particular relevance when a patient is in the armed forces.

Secondly, as value and reliability as the differential diagnosis of obstructed pass is substantial. In our experience and that of Ross and his co-workers (1962) an obstructed pyelogram has not been found in any case in which the cause of the symptoms lay outside the urinary tract. This fact, together with the high incidence of positive pyelographic findings in cases of renal or ureteric colic in this series and in our subsequent studies over some four years, has led us to regard a normal immediate pyelogram as virtually excluding the urinary tract as the source of symptoms.

Thirdly, immediate pyelography allows an early accurate assessment of the size and situation of an obstructing calculus, thus enabling the surgeon to plan the management of the case from an early stage. While no hard and fast rules exist for the management of the obstructed ureter, the question of when operative intervention should be started is of importance, and often difficult to decide (Blackwood, 1965). A large calculus in the distal ureter may be safely left for some weeks in the hope of spontaneous passage. Early pyelography in these cases usually shows marked suppression of function, due to the 'valvular' effect which the proximal ureter and pelvis confer on the renal plexus above the obstruction. Conversely, an early

podiatrists may show a loss of efficacy at the podiatric-podiatrist group and to avoid suppression of renal function due to fluid retention, especially in the presence of an obstructed pelvis. Should subsequent podograms show that there has been no relief, then the cause of failure persists, or should even symptomatic relief with aspiration may be indicated in order to decompress the kidney. Immediate podiatry in such cases enables such a situation to be recognised with a host of the cause, draws attention to the need for close and repeated observation, and it is suggested, may well prevent irreparable renal damage which might otherwise result. Between these measures the necessity of reaspiration, which is not infrequently recognised when a late podogram might give the false impression that the calculus had become impacted. This knowledge is of value to the surgeon in reaching a decision on the optimum time for surgical intervention.

In the radiological approach to emergency podiatry the plain film may reveal an opaque calculus or unilateral renal enlargement. An early film at five minutes is important to establish the degree of renal function of the affected kidney. If it is severely reduced a prolonged observation may be anticipated and a second aspiration of contents may be required. An ultrasonic examination may be seen at this stage and increase in density during the next 30 minutes. Films need only be taken at intervals of 30 minutes in each case. When a nephrogram was present two hours provided the peak diagnostic interval, one patient however requiring 30 hours but none less than one hour to reveal the obstruction (Fig 3).



Fig 3. The diagnostic time in which the fluid had content in emergency hydronephrosis (□) and nephrogram (■).

In cases with low severe obstruction of function and no nephrographic effect, the rate of obstruction was revealed at a much earlier stage. 49 per cent of the total number of patients showing the sign of obstruction within 30 minutes and only six in five cases had the examination to be continued up to two hours. The more important sign was the 'spill over' when contents had accumulated which revealed the site of obstruction. Treatment steps such as catheters at the site of urinary obstruction, manual enlargement and surgical options were of greatest value in relieving the passage of very small calculi.

Repeat podograms are important to follow progress of the calculus and our experience suggests that a second podogram is indicated within three weeks of the onset of pain. A podogram after the passage of the calculus is useful to ensure return to normal function of the kidney.

|                       | No. of<br>Experiments | Type<br>of Fish | Mean<br>Incubation<br>Period | Age of Fish<br>at<br>Incubation<br>(days) | Incubation<br>Temperature<br>(°C) | Feeding | Concentrations<br>of<br>Nutrients | Age at<br>Release (days) | Survival<br>Rate |
|-----------------------|-----------------------|-----------------|------------------------------|---|-----------------------------------|---------|-----------------------------------|--------------------------|------------------|
| Exp. I                | 1                     | Blue tilapia    | 21 days                      | 1 day                                     | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 2                     | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 3                     | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 4                     | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 5                     | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 6                     | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 7                     | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 8                     | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 9                     | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 10                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 11                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 12                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
| Exp. II               | 13                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 14                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 15                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 16                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 17                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 18                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 19                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 20                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 21                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 22                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 23                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
| Exp. III              | 24                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 25                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 26                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 27                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 28                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 29                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 30                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 31                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 32                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 33                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 34                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 35                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
| Exp. IV               | 36                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 37                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 38                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 39                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 40                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 41                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 42                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 43                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 44                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 45                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 46                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 47                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
| Exp. V                | 48                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 49                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 50                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
|                       | 51                    | Blue tilapia    | 21 days                      | —   | 24                                | Normal  | 24                                | 20 weeks                 | 20 weeks         |
| No signs of infection |                       |                 |                              |   |                                   |         |                                   |                          |                  |

Table 1. The incubation periods of 51 eggs of blue tilapia, incubated by incubation temperature and feeding.

\* Average incubation period of 21 days.

#### RESULTS AND DISCUSSION

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## MEASUREMENT OF ORAL CALCIUM ABSORPTION FROM THE GUT BY EXTERNAL ISOTOPE COUNTING

By Marjorie A. Macleod

### ABSTRACT

Among the factors which regulate normal gastro-intestinal calcium absorption, current thought recognizes calcium intake, vitamin D and parathyroid hormone as playing an important part. It is well documented that gastro-intestinal calcium absorption is reduced in states of malabsorption, hypoparathyroidism and in patients with chronic renal failure, and raised in states of hyperparathyroidism, osteoporosis and idiopathic hypercalcaemia.

Difficulties inherent in direct calcium-balance techniques have prompted a search for more practical and reliable methods of measuring the degree of impairment of calcium absorption. This paper describes a study of intestinal calcium absorption in 10 normal subjects and four patients with various disorders of calcium metabolism, using an external radioisotope counting technique.

### Introduction

During the past decade interest in calcium metabolism has greatly expanded and with current methods of measurement of calcium absorption, both bone measuring and regaining techniques with great metabolic ingenuity, a simple more direct method would be of great advantage. Measurement of serum calcium alone will only give the equilibrium figure between calcium input into the bloodstream (not skin loss and bone resorption) and calcium output from metabolism and renal excretion as the basis of measurement and will not necessarily reflect quite large changes in any one of these parameters. For example, the concept that there exists a steady state or physico-chemical equilibrium between blood and bone calcium, the level of which is determined by parathyroid activity, is not supported by recent work (Nordin and Finkel, 1969). The technique developed here, based on the work of Curtis, Follum, and Roth (1967) is simple, does not inconvenience the patient and only requires a few minutes of time on each of three consecutive days to perform. This method is based on the assumption that the distribution in the body of an absorbed part of an oral dose of calcium is identical to that of an intravenous dose, that the fraction of a tracer  $^{45}\text{Ca}$  dose, measured in the forearm in this case, will be the same as that of an absorbed dose. Knowing the exact amount of the isotope given orally it is then easy to calculate the exact amount absorbed from the gut.

### Materials and Methods

Initial studies were carried out on eight volunteer subjects from the medical staff of the Institute of Naval Medicine who had no evident disorders of calcium metabolism or intestinal function. The subject used was  $\text{Ca}^{45}$  a 1 M litre vial with a 45-day half life. The isotope being relatively small and fairly stable is especially suited to external counting and was used in all measurements. Preliminary studies showed that it took approximately 24 hours for a small IV dose of  $\text{Ca}^{45} \text{Cl}_2$  to reach equilibrium in the forearm, bone and blood. Decay from



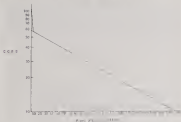


Fig. 1.  $^{60}\text{Co}$  decay in the forearm following 20 injections.

data have already being exponential. 24 hours was selected as a suitable time to measure forearm activity.

The apparatus used to carry out forearm activity measurements comprised a large volume lead chamber incorporating two NaI (TI) 4 in.  $\times$  3 in. crystals in opposition, with a curved plastic arm rest and hand grip between them, to ensure constant geometry when counting the forearm on subsequent days. Counts were recorded on an Orion meter/scaler.

On the first day, preliminary control arm background counts were made on all subjects. Each was then given 1  $\mu\text{Ci}$   $^{60}\text{Co}^{2+}$   $\text{Cl}_2$  in 1 ml saline IV. On day two, at 24 hours after the injection, the background count rate was measured with the subject in position inside the chamber, but with his arm outside. Following this count, the forearm was inserted into the chamber and counted for 140 seconds. On completion each subject was given to drink 10  $\mu\text{Ci}$   $^{60}\text{Co}^{2+}$   $\text{Cl}_2$  in 100 mg sodium gluconate solution made up to 100 ml with water. Subjects rested at least 12 hours before and two hours after the next dose.

On the third day, 26 hours after the next dose on the second day, i.e. two hours for example, absorption of the next dose from the stomach in the fasting posture plus the 24 hours required to achieve equilibrium, background count rate was again established and arm count rate subsequently measured. A similar final measurement was made on day four, 50 hours after the next dose.

### Results

Arsenic rate corrected for size, background and decay is expressed as  $\text{cm}^2 \text{sec}^{-1} (\text{r} \pm 1)$  measured at 24 hours after ingestion ( $A_0$ ), 24 hours after the oral dose ( $A_0$ ) and 24 hours after the oral dose ( $A_0$ ). The true instantaneous dose rate and dose  $\frac{TP}{10}$  is constant and the integrated decay for a 24 hour period can be expressed as the fraction  $\frac{A_0}{A_0}$ . From these measurements it can be shown algebraically that the absorbed fraction (P) of the oral dose is

$$P = \left( \frac{A_0}{A_0} - \frac{A_0}{A_0} \right) \left( \frac{TP}{10} \right)$$

The results obtained from the 18 normal subjects gave parameters of amounts of arsenic absorbed from the gut of 25 per cent — 52 per cent ( $\pm 2.5$  per cent) with a mean of 28.5 per cent (see Table I).

Table I

| Subject | $A_0$<br>at 24 hr | $A_0$<br>at 24 hr | $A_0$<br>at 24 hr | TP (hr) | Absorbed<br>Fraction P | %<br>absorbed |
|---------|-------------------|-------------------|-------------------|---------|------------------------|---------------|
| P 1     | 1.400             | 11.100            | 10.500            | 0.01    | 0.11                   | 27            |
| P 2     | 1.200             | 11.200            | 11.500            | 0.01    | 0.10                   | 26            |
| P 3     | 1.400             | 11.100            | 10.500            | 0.01    | 0.11                   | 28            |
| P 4     | 1.200             | 11.200            | 11.500            | 0.01    | 0.10                   | 26            |
| P 5     | 1.200             | 11.200            | 11.500            | 0.01    | 0.10                   | 26            |
| P 6     | 1.200             | 11.200            | 11.500            | 0.01    | 0.10                   | 26            |
| P 7     | 1.200             | 11.200            | 11.500            | 0.01    | 0.10                   | 26            |
| P 8     | 1.200             | 11.200            | 11.500            | 0.01    | 0.10                   | 26            |
| P 9     | 1.200             | 11.200            | 11.500            | 0.01    | 0.10                   | 26            |
| P 10    | 1.200             | 11.200            | 11.500            | 0.01    | 0.10                   | 26            |
| P 11    | 1.200             | 11.200            | 11.500            | 0.01    | 0.10                   | 26            |
| P 12    | 1.200             | 11.200            | 11.500            | 0.01    | 0.10                   | 26            |

This compares favorably with a mean calcium absorption of 28.5 per cent in a similar study carried out by Chalmers *et al* (1947) on 12 normal subjects who had conventional stool calcium estimations carried out at the same time giving a calculated mean calcium absorption of 25.1 per cent.

Approximately 50 measurements of calcium absorption have now been carried out on hypo and hyper-calcemic patients with and without osteoporosis and it is hoped to present the findings at this event at a later date. Table II shows results obtained from a sample of these patients.

Table II

| Pt. no. | Diagnosis           | $A_0$ | $A_0$  | $A_0$  | Absorbed<br>Fraction P | %<br>absorbed |
|---------|---------------------|-------|--------|--------|------------------------|---------------|
| P 13    | Asplenic            | 1.200 | 11.200 | 10.500 | 0.10                   | 26            |
| P 14    | Hyperparathyroidism | 1.400 | 11.100 | 10.500 | 0.11                   | 28            |
| P 15    | Hypoparathyroidism  | 1.200 | 11.200 | 11.500 | 0.10                   | 26            |
| P 16    | Hyperparathyroidism | 1.200 | 11.200 | 11.500 | 0.10                   | 26            |

### Discussion

The method of measuring calcium absorption from the gut described here fulfils the proposed criteria, being simple and quick to perform with minimum inconvenience to the patient. It also meets the necessary standards in the most collection method by the measuring

of previously absorbed volume by the lower colon. Success of oral intubation in the technique lies in the prior assumption and the experimental conclusion obtaining. Among these is the assumption that the oral dose is essentially absorbed within two hours of administration but there is some ample evidence that, in a fasting patient, under the conditions of the test, absorption is rapid and essentially complete in two hours (De Graaf, Janssens, Fellens and Rade, 1965; Avon, McDonald, Singer and Hennessy, 1965). There is a considerable amount of evidence remaining in the gut at the time of counting, 24 and 36 hours after the oral dose, but with correct positioning of the patient at intubation in the duodenum, or close against the trial wall so that no part of the body is seen through the port by the detector, and careful background counting, the effect of this complex interference in the gut can be measured.

The principal advantage which recommends the natural counting method as a technique. Unusually rapid and complete stool and urine collection and accuracy of the equipment laboratory techniques is avoided and the patient is not embarrassed or inconvenienced. The method deserves consideration as a routine laboratory investigation.

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# OPERATIVE BLOOD LOSS ESTIMATION

A Preliminary Communication

By James Cox and Brian McCannick

Accurate measurement of operative blood loss is not easy, and perhaps the most satisfactory of the simple methods is that of haemoglobin dilution.

The method has been comprehensively reviewed by Boyd (1965) who summarized the difficulties and the sources of error and suggested that the gravimetric assay haemoglobin should be used for such calculations.

Most haemoglobin dilution techniques involve a fixed diluent volume and calculation of the blood loss involves the assumption that there has been no change in the volume; this limits the usefulness of the method since in certain operative procedures, such as Trans urethral Resections, and in post-operative bladder drainage, the volume is variable.

We have devised a chart which allows for the variable volume and also takes into account the patient's pre-operative haemoglobin.

## BLOOD LOSS ESTIMATION

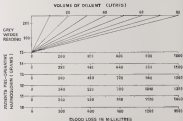


Fig. 1. Chart for estimation of blood loss.

# Materials

The layout of the chart is self-explanatory. It is recommended on graph paper mounted on a board and covered with clear plastic secured with corners with screws.

In use, a line is drawn with a wet pencil from the measured diluent volume to zero, grade line has been incorporated into the chart on the 10 liter mark. A horizontal line is drawn from the Gray Wedge reading on the sample. From the point where these lines cross, a vertical is dropped. This vertical into the hemoglobin line relevant to the patient, and from this point the blood line is determined.

# The Photometer

A Gray Wedge Photometer is used for the measurement of the hemoglobin content of the sample.



FIG. 1. Gray Wedge Photometer (Gray, 1951)

### The Container

The container for the diluent is a 48 litre plastic container to which a rigid clear plastic tube has been added. This tube has been calibrated as 5 litre steps (Fig. 2).

### Methods

The technique of use can be loosely grouped under three headings. It must be emphasized that vigorous mixing of the fluid is essential prior to all sampling. In all containers 1 ml of strong sodium solution should be added to the contents of the container to prevent colour fading.

#### A. Blood Loss on Swain alone

A fixed volume of water (usually 20 litres) is placed in the container. All swins are thoroughly washed by hand in this water. The haemoglobin content of the fluid is measured as required.

#### B. Blood Loss on Swain, in Bools and Sinks

Up to 15 litres of water are placed in the container. As in A, all swins are washed in the fluid; additionally the contents of the bools and shower bowls are added to it. When a reading is required the fluid is made up to the first five litre mark with water and after mixing the haemoglobin concentration of the fluid is estimated.

#### C. Blood Loss all Antikind with Fluid

The system is of use for Trans-vascular Operations and for post operation bladder drainage (BVO). Since the stripping fluid is viscous it is necessary to add water to keep down the blood. We have found that an initial volume of 15 litres is satisfactory. The stripping fluid is added to the container and readings are taken as in B above. If there is a heavy blood loss it may become necessary to further dilute the fluid in the container as the operation proceeds.

### Discussion

The method has errors, which have been detailed by Boyd (1955). Despite this we believe that this will provide a useful and simple method of estimating blood loss, especially in Trans-vascular operations.

### ACKNOWLEDGEMENT

To Lieutenant Commander N. J. Gibson for his invaluable assistance in the construction of the chart, Chief Medical Technician G. L. A. Russell for advice in the use of the Gens Nibel Photometer, Surgeon Commander N. G. H. Murray and Surgeon Commander M. J. Mann for their criticism and advice and to the Plymouth Command Photographic Section for the photographs of Figs 3 and 4.

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## THE SWEDISH RADIO MEDICAL ORGANIZATION

Bo L. Hansson, S. Johansson and G. Berglund

### ABSTRACT

A short survey of medical consultations by radio from the Swedish merchant marine 1968-75 shows, among other things, that medical consultations were responsible for 66 per cent of Radio-Medical consultations.

More than 70 000 sailors are travelling on board Swedish ships all over the world. Only a few ships have medical personnel on board. Even though the sailors have some medical training it is obvious that a need for medical consultations must arise in many instances. These medical consultations go through the so-called Radio-Medical Organization. The system that the ship calls Gothenburg Radio and from there the call is connected to the medical or surgical emergency ward at Sahlgrenska hospital. If necessary consultations can join the message is sent by telegram. In order to make the consultation easier and to avoid misunderstanding there is a specially formulated scheme on board the ship and at the hospital. The formula contains the name of the calling ship, its position, individual name of vessel in its destination and the nature of what it will take to reach the nearest port. There is also a map of the human body which is used to direct symptoms from different parts of the body according to a graded scale.

The consulted doctor, after having listened to the message, then directs on the case. When he has a direct telephone contact with the ship, he personally supplements his information. In all other cases a telegraphic exchange of questions and answers takes place. It is obvious that communications must be short and clear. After sufficient information is obtained a probable diagnosis is made and recommendations for treatment are given.

On Swedish ships there are drug cabinets of several types. The most widely used cabinet contains a varied but limited number of drugs. To the difficulty in reaching correct diagnosis the problem of having only a limited number of drugs is added. One must also consider the fact that a recommendation to change the destination of the ship may be very costly.

### Collection of data

The data consisted of 17 per cent of all telegrams and doctors' notes from 1968 until June 30, 1975. There were 216 patient consultations during this period (Fig 1). Information on 12 per cent of the patients was not available. The cases were divided into different diagnostic groups. The diagnosis used was the one or by the consulted doctor except in a few cases where it was changed because of later information from the ship.

### Results

Based on the different call positions it can be seen that Swedish ships travel all over the world. The positions have usually been given with numbers both for latitude and longitude in order to get a general picture of ship locations, positions have been divided into the following areas:

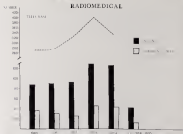


Fig. 1. The (year) showing the number of calls received by the radio medical service from 1960 to 1970. The solid bars represent the number of calls received by the radio medical service and the dashed line represents the number of calls and telephone consultations received by the radio medical service.

|                         |    |                    |     |
|-------------------------|----|--------------------|-----|
| Swedish personnel cases | 3  | The South Atlantic | 19% |
| The Pacific Sea         | 4  | The Mediterranean  | 3   |
| The North Atlantic      | 22 | The Indian Ocean   | 18% |

For the years 1960 and June 30, 1970 the exact positions have been marked on a map (Fig. 2). It is possible that the number of calls made within Swedish territorial waters is somewhat low. It is probable that ships at sea (the main reason of consulting the RMO directly) concern the western part.

The average age of the patients was 33 years. Seven per cent of the patients were women. The most common symptoms reported were pain (32 per cent) and fever (30 per cent). Aches 4 per cent of the patients were mentioned. The diagnosis were divided into the following groups:

|                                   |     |                           |     |
|-----------------------------------|-----|---------------------------|-----|
| Infectious                        | 25% | Acute stress or pollution | 4%  |
| Acute trauma or burn injuries     | 34% | Neurotic disease          | 3%  |
| Acute abdomen                     | 19% | Psychiatric disease       | 3%  |
| Gastritis or ulcer of the stomach | 9%  | Gynaecological disease    | 1%  |
| Heart disease                     | 5%  | Malignant disease         | 31% |

As expected surgical cases with trauma and burn injuries and infectious dominated the operations. Similar groups could be taken out from each main group. For example 30 per cent of the infectious were surgical meningitis and 30 per cent of the cases classified as heart



deaths were presumed to be myocardial infarctions. Under the heading of myocardial infarction were put conditions such as atherosclerosis, cerebral vascular accidents and skin diseases. The given recommendations mostly consisted of prescriptions of different drugs. In 10 per cent of the cases analgesics, usually paracetamol, were prescribed. Morphine was given to 16 per cent of the cases. In 50 per cent of the communications a change in destination was recommended in order to bring the patient faster to medical care. In a few cases the patients were moved to other ships or picked up by helicopter. The cases where less medical care was needed, for example patients with acute rheumatism, were less common. Patients with chronic anginal pectoris and myocardial infarctions were closely monitored to the high frequency of advice to go to the nearest port.

It was found to be impossible to follow up the different cases in order to evaluate the results of the recommendations. Information about the continuation of care was missing in 79 per cent of the cases. Around 17 per cent of the patients had been taken ashore while a boat, more than 2 gpm, was laid dead.



Fig. 2. Björksten (1982) Figure 8. Location of each radioing ship 1959 and 1970

#### DISCUSSION

It is felt that the Swedish Radio Medical Depositions is an effective way of diagnosing and treating patients at sea. The information given from the ships was usually clear and accurate. Even in emergency situations telephone and radio communications took place between the ship personnel and the doctor. Only a handful of the calls caused controversy. The problem for the doctor to reach a diagnosis through telegraphic communication has been mentioned earlier. The task is however increasing and demanding. A better follow up of the patients would at times be desirable from the doctor's point of view and this could easily be achieved by one or two telegraphic exchanges during the days after the first series of communications.

## "IT'S BARBUDA, ME COME FROM"

By Paul Christ

This drink is the "Taste point" on the road, but can be heated down at the airport. I was supposed to arrive last night, but the pilot left an hour before time. But this is Barbuda and time doesn't really matter. They are all there, however, the workers, the pharmacist and the police sergeant with his assistant. The servants too got up especially early today.

We were expected you yesterday!

"I know. I'm very sorry but"

"What's been" is it all the same?"

The lady pointed, excited, answered that "Planned" no longer.

"What's your name, Sir?"

Dr. Christ, I replied, putting my grip into the Land-Rover and off they went shouting. Yes, it was very friendly.

Barbuda lies to the north of Antigua in the Caribbean. It is a coral island some 22 miles long and eight miles wide with a well cliff-hugging east coast, protected by the Antigua. In contrast, the west only has miles of pink sandy coral beach which enclose a vast tranquil lagoon. Codrington lies on the east of the lagoon, an small gray port able to take the main island whenever that ply through the tortuous creek to the north. Here too lie a network of small channels, amongst the mangrove swamps. (One will tell you that some of the best fishing is found with yellowtail and red snapper, parrot and grouper amongst the crossing, here). Apart from the one village, the island is covered with close, dense scrub where guinea fowl roost and wild bees and deer are plentiful.

RMSA flew the ship in which I was working, was engaged in survey, oceanographic and other scientific work around Barbuda. She is one of the latest pair of coastal survey vessels, sister ship to HMSA Java. Both were built two years ago and, after one season in the cold of home waters, were sent for evaluation in the warmer climes of the Caribbean. The main cruises between March and November were split, first sweeping off Antigua, St. John's, with a trip to the Bahamas and Florida, then undertaking the scientific work on and around Barbuda with a special survey off Anguilla. And I was sent to land as helping hand on Barbuda for two weeks.

### Historical

The history of the island is concise, and yet fairly long so far it was named by Columbus on his great voyage of discovery and was not named until the beginning of the sixteenth century. In between times and so-called "Highlands", never more 200 feet high, offered protection to the Carib Indians until quite late, the more so because of the various reefs along the whole of the Atlantic coast and to the north and south. Many sailing ships in those early days were sent apart by the fierce waves, as they crashed violently on terrible coral heads. Spanish treasure ships were caught there early months and it is easy to understand why a weary lookout, after months at sea, might even, until too late, that this white line that split disaster. At least 27 wrecks have the modern reefs where shafts cross hopefully.

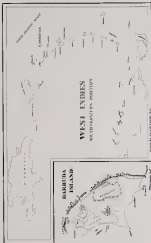


Fig. 1

By the turn of the seventeenth century, however, the French had established supremacy in the eastern Caribbean and the Governor of the Leeward Islands in that time, one Christopher Codrington, was given the island as a reward. His father had been Governor before him and the family owned extensive plantations on the other islands. These large estates required labour and the Codrington family set up a slave-breeding community on Barbuda to supply them. By legend, only the best slaves were brought to the island and it is certainly true that the average Barbadian today is physically very tall and powerfully built. The owners of the slave community on Chabington lived as a *hacienda* which even still exists on the highland region some few miles from the village. They appear to have quartered their authority by exploiting primitive beliefs and fears, confining the people to the village by creating legends which made them fearful of venturing abroad. The community still lives within Chabington and I am told that a few forbade marriage with the surrounding country—a true echo of the past. After the end of slavery, the Codrington family gave the island to the community they had founded so many years previously and though now governed from Antigua as a dependency, its people retain the sole right to own land on the island.

#### **Barbuda Today**

The island's main export has always been its people and this is true today. It is estimated that several thousand Barbudians are working in the United States and United Kingdom, whereas the population on the island at any one time is rarely more than thousand. They are mostly old people, mothers and children, supported by remittances from their families abroad, of whom, particularly now the island is one that has lost before returning to the more lucrative economies of their adopted countries. Those who do stay behind are mostly ill educated, for the nearest school was not stocked with fish and lobster. The houses are built easily enough with wattle walls, a sport in which even I had moderate success, and are then flown free every week to Puerto Rico and the north American market. A few villagers work on the old plantations near the Highlands growing groundnuts and maize, but the land has been overworked and results are poor.

Marriage may not be one of the subtle influences of slavery on Barbuda, but the true community spirit is. Whenever Barbudians are found throughout the world, a group of them can be discovered together. There is even a newspaper called the *Barbadian News* which enjoys a worldwide distribution. It reflects a strong cohesion but none the less Barbudians (indeed I would hazard a guess that many children are the offspring of purely Barbadian relationships, although this cohesion is bound to change with the improvement in racial tolerance and race intermarriage in the West. Interbreeding has been a feature of Barbadian life since its foundation, however, and the traditions, like most, will die hard.

The speaker from University College, London, was concerned in the ecology of the island as postulate, macroethnobiology (study of human foods in the social) and in ethnomedicine. I spent several pleasant afternoons collecting samples and several not so pleasant, for the island is incredibly hot and dry. The terrain is best covered through a description of an evening's boating that I enjoyed with one of the local boys called Prophet.

#### **Exposition with Prophet**

You need a Land Rover and there are only four on the island, but by good fortune Prophet's brother owns one. Trucks are able to take a Rover land into the wild interior of Barbuda. The roads are dusty and only with a guide can you start the Highlands and approach the

prominent phenomena when the game's final kick. Mosquitos much less common on the island and only the local population, where for much of the year, will keep away the hungry hordes. This we agreed over time and it was before dawn was the underground with the dog. There I was, on hands and knees, crawling along inches from the ground, hoping no one what was likely to find me around the next corner. Something that I thought I had escaped when they pointed me on the back at Lymington and suggested that I might like to come! I was amazed, however, at our survival for we were alone in the field of smoggy corn and before I could get the first major spike out of my head. Prophet had spotted the game's foot. The dog stopped abruptly in the night, near imperceptibly, sniffing the soil as suddenly they were up, twenty or more, flying a kick like our own partridge, but splashing into the darkness to glide nearly into the thick fog. The militia remained except for the muted rustling of the dog in the air. He wasn't here, however, I had missed. I felt ashamed but Prophet was proud just because I had managed to shoot. Certainly, I might add, were his gold dust on the island, over time the attempted result two years previously, when the Antiguan Government had rather rapidly suppressed Colognes with policemen and heard weapons that had so rapidly fired, ended in a predictable way. Even then, ammunition had become a very tight and extremely difficult to come by, so you may understand why I felt ashamed of money. Prophet doesn't usually like the whole idea of money, all two hands with one shirt. Further, money was not so common for after the last military's coming to within fifty yards of the working prison level, a particularly nervous outburst caused a yell that sent the prey flapping wildly over further into the bushes. We tramped back to the Local Bureau in the fading light, our dependent and he delighted—then a job the way they are—these Barbadians.

#### Local Medicine

Carlisle Ephraim, the pharmacist, had met me at the very six-meter place. He is a good natured local man who was trained as a dispenser and then returned to take up the apprenticeship for the Antiguan Government. He runs the local government clinic which lies in the center of Codrington. It is not grand, indeed it could be said to be less than functional, but it has to do.

We've been expecting you, we have a clinic this morning. He said with a smile. We'll drop your things at the Window and then you can come straight down if you like." I agreed. I finished the clinic at 12:30 and saw some 20 odd patients. In the afternoon we went evening. Everyone wanted everyone treated and I began to feel at home.

The problems of Barbados are the same as those of any small and isolated dependency. Drugs were in very short supply and a vast number were out of date or outdated. Having no medical stores, the situation depended on a list that reached weekly sent by a doctor from Antigua. He had recently returned to Korea, from whence he came, and left a gap which I could only fill for two weeks. Thus anyone requiring repeated medical treatment had to travel to Antigua and the frequency of these visits was dependent upon their means and not upon medical requirements. Treatment had to be paid for and one found patients dropping hypertension treatment when the money ran out or buying a few weeks' supply of penicillins purchased in Antigua, without being able to complete because of cost. Medical education was virtually nil, at was very difficult, for example, to persuade people of the urgency of some treatment or the necessity to attend regularly for the control of conditions such as diabetes mellitus.

Hypertension was one of the first little recurring thoughts. Big it dates the main systolic and diastolic blood pressures of all patients seen in the clinic. Of these, all were female and

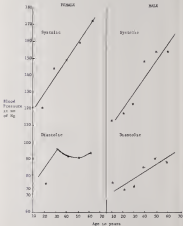


Fig. 3 Graph of variation of mean systolic and diastolic blood pressure with age.

all male. They are plotted by decades and correlated closely with the findings of Schoenfeldt and others (1962) in a series conducted in nearby St Kitts. These results were correlated with those of other series relating to western negroes by Mull, Kuo-Ling and Sherril (1962). Eysenck and Eriksson (1967) devised a system for classifying specific blood pressure and age by means of a series of postmenstrual stages. Using this system, the female group fell into the same category as negroes from Jamaica and St Kitts, while the male group were on a frustratingly higher slope than the St Kitts males, but similar to the Jamaicans. It should be pointed out, however, that the series is very small and the difference probably of no real significance. Sir George Pickering has drawn attention to the possible significance of a cardiovascular risk diet and especially the Barbados diet in very rich in carbohydrates and obesity is common.

A common of the complication of high blood pressure is one of the few medical fears of these people and one had to give them a short course regardless of age. I was even asked to check the blood pressure of a child of five months on one occasion!

Of the 20 cases with diabetes, treatment of 10 was life or above, only six displayed symptoms or signs. Two of these were diabetic, one of whom was a 24-year-old woman with a diabetes of 150 mm and her diabetes completely out of control. Of the others, only one showed categorically grade II symptoms were mainly headache, dizziness, burning of vision and nausea.

It was decided not to be over ambitious for, after I had gone, Caribbea alone would have to run my clinic. Those displaying symptoms or signs and those other young patients with diabetes BPs over 100 mm were started on hypotensive therapy. Only response was available in adequate quantity, a most important factor of continuous treatment was to be maintained. Some devices systematically came our way and were used in the more severe cases. Much time was spent in explaining the importance of attending the clinic regularly and in using the tablets as prescribed. A system of notes was started.

The three or four diabetes on the island were obviously the next in being onto the list and the more close was used for their regular control. All were less-severe type of diabetes and controlled by the drug diabetes and by diet. The patient notably out of control previously mentioned in the discussion on blood pressure, was admitted to the hospital in Antigua.

But, as important as diabetes control is a problem on the island, for the diet is typically African and is abundant in starchy foods. Rice, sweet potatoes and the indigestible 'kuff' or boiled molasses corn, are dominant. There are large herds of goats on the island, but these are not slaughtered, for they bring status to the owner which is more important than the better of his family. Cattle and pigs are continuously butchered, but, as the whole fresh and meat is not eaten. Fish and lobster (only carabids are plentiful) however, and proved to be the nutritional substance of the island. These vegetables, though they can be grown, are not popular, whereas both fruit and honey are eaten. Nutritional problems are thus one deficiency anemia, particularly in pregnancy, and a state of excess weight. There was no evidence of vitamin deficiency. Milk is perhaps most strongly disliked by the children, something they have in common with most West Indians. Imagine my delight therefore when one day I saw three children sipping under a hot, again of fresh 'tatties', powdered milk. I asked what their mother was going to make with it and the reply 'yagfod' made me wonder if someone shouldn't take a long hard look at the usefulness of some foreign aid.

Interwoven, long with a reliable feature of the island's life, it was particularly interesting to look for changes in the breeding birds. The male bird test of a young lot of male was presented with increasing numbers of gas over the past two years. He was small for his age and covered with open sores from infected mosquito bites. There are increasingly impressive of some degree of mental or physical disability to observe the robust birds before and in the forest. But examples amongst makes the elderly and the, as described.

He exhibited marked crying when he walking and although Kennedy's sign was negative, he emerged from side to side in a rocking fashion while standing. Both arms and legs were affected in the lack of co-ordination but the lower limbs were worst. He displayed strange coarseness to touch of his head and neck, which had spaces of skin nodules over the neck.

Reflexes were diminished and the plantar response was exaggerated. Pupils remained reasonably good while the limbs were usually hyporeflexic although they seemed a little spastic on one occasion. There was no per-cranial but a dorsal problem was present. Myelogram was normal. Dynamic MRI was of a rather typically type I form and suggested posterior canal to conus lesion.

The mother admitted to another child in the family being similarly affected. This boy had just apparently the onset of the affected boy and was three years old. Her symptoms and signs were much more exaggerated with her whole body making clear, rhythmic movements. At times, I observed the two very marked hypsionus, but not more was again observed. I could not see further history in the family, for the mother herself was of low intelligence and she couched with the vagueness of family relationships. On the clinical, much more severely deficient. Both children had no more than 10000.



Fig. 10. The effect of the initial concentration of the monomer on the rate of polymerization of  $\alpha$ -methylstyrene in the presence of  $\text{TiCl}_4$  and  $\text{AlEt}_3$  at  $-78^\circ\text{C}$ .





I thought there were 100 people, by name, but I should be more accurate to list of other aspects.

No one knew anything on the island about great emphasis on clinical findings. This is rarely better demonstrated than in thyroid problems where diagnosis and the effect of treatment are often to be carried out on signs alone. Such was the case in two hypothyroid patients who both had midyroid thyroiditis and midyroid midyroiditis in the USA. Both should respond well to replacement therapy. The first case of thyroiditis (midyroiditis) was seen in Antigua in order that he could be under the care of a single doctor throughout the course of treatment. A very fine thyroid midyroiditis (midyroiditis) was discovered in a young woman of 24. She was midyroiditis and obviously required help beyond that locally available. She was therefore referred to Antigua.

The nature of tropical medicine in which I have a particular interest was surprisingly small. Midyroiditis has now been described in all the West Indian Islands, as has Thyroiditis. Although some cases have been reported from isolated parts of Dominica, Guadeloupe and Haiti. The most common infectious disease was local thyroiditis (midyroiditis), which has a prevalence of about six months. Long-term was the most common reported infectious disease, together with infectious mononucleosis, particularly in children. Infectious mononucleosis was rare and there was no evidence of heavy parasite infestation. Despite various all types of life including large numbers of cases of this poisoning were seen, even though our own records.

Patients were included one of more midyroiditis in a child of five months. Fortunately it responded to midyroiditis (midyroiditis) as no other suitable drugs were available. Midyroiditis (midyroiditis) appeared common in particular respiratory cases. Figure 4 is the tip of the lower leg of a child of three with slight swelling over the affected area and a lump. After a month of midyroiditis treatment he was much improved. Such local signs (midyroiditis) are very common, not only in midyroiditis but also in midyroiditis (midyroiditis).

The prevailing condition on the island was undoubtedly respiratory<sup>1</sup> by contrast was never up to much at the time of onset and trying to remember all that between about heads and heads was very hard. I shall never again forget to take my chronic book with me on my trip.

Commonest produced just the sort of cases that are seen in England. I treated several cases of heart failure, Parkinson's disease and cardiovascular accidents. Rheumatoid arthritis was quite common.

Finally, dementia. It is quite a rare case when doing medical days when the patient was given a general, and you pretended to be looking in the back of the head and he was under. He took history in Barbuda? Most patients came in, and down and passing to the attending day out right with this meaning the midyroiditis. They couldn't comprehend the nature of a local midyroiditis.

But for all the light-headed side the whole trip was thoroughly worth while. I saw just over 700 patients in ten days, almost one third of the island's population. I fear that the immediate work may have suffered a bit as a result, but it was an experience that you couldn't get any other way—unless you were a missionary—and then you wouldn't be paid!

What about the future for Barbuda? The present Antigua Government is building a hospital but it has been drastically cut down from the original concept. It was planned to cover for the expected needs of the island, not just medical but a variety of other health care than the few representatives of the present community. The staffing problem has not



Fig. 4. Anteroposterior view of leg.

South (with a capital S) considered and the loss of capital Barbadians to the USA and UK is a massive downward slope of emigration.

But between you and me, I doubt if Barbadians will change all that much. They are an eternally happy and proud people and perhaps all that are so-called 'civilised' transports may succeed in doing it to destroy a consciousness. I'd rather hear them sing to the death-bell, than of Oliver the postmaster's steel band.

Just do your own thing. It's Barbados not come from!

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In addition to the numerous papers on gonorrhea, this symposium has directed attention to the importance of the gonococcus itself. For the first time, the gonococcus has been discussed in the context of the gonococcal infection, and the importance of the gonococcus in the pathogenesis of the disease has been emphasized. The symposium has also emphasized the importance of the gonococcus in the pathogenesis of the disease, and the importance of the gonococcus in the pathogenesis of the disease.

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It is highly probable that the symposium will be a success, and that the gonococcus will be discussed in the context of the gonococcal infection, and the importance of the gonococcus in the pathogenesis of the disease. The symposium has also emphasized the importance of the gonococcus in the pathogenesis of the disease, and the importance of the gonococcus in the pathogenesis of the disease.

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*Journal of the Royal Society of Medicine* 56: 1041-1051.

This book has been published in 1961 with a title that is descriptive and somewhat narrow of purpose. The editors have been extremely successful in their selection of material, and the book is a valuable contribution to the literature on the gonococcus.

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One of the main goals of the symposium is to provide a comprehensive review of the current state of knowledge on the gonococcus. The symposium has also emphasized the importance of the gonococcus in the pathogenesis of the disease, and the importance of the gonococcus in the pathogenesis of the disease.



There are a few insects devoted to the complete destruction of the apple weevil. Others which appear to be good at young stages, as a larva or chrysalis stage, without emerging as an adult with great frequency. The European corn-boring weevil, for example, has a larva which will devour and would certainly be as full as the weevil when it emerges, but the larva is so small as to be almost invisible to the eye.

It was very surprising that the other members of the team have a very great understanding of the world around the different regions we developed and a sufficient ability to design a product, in other words, to design the product and the process.

This is not a claim of self-evidence or logical truth, but it has the force of a truism. It has a place in the small set of background assumptions or unstated methodological reference axioms, all of which because of their practical and methodological character are not subject to empirical testing.

100

Reprints: Martinus Boudier, B. D. S. (Agent: Martinus Boudier) 1 J. T. Boudier, 400 Market St.,  
London, U.S.A. (Tel. 2140)

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These findings are more or less corroborated at a more local or individual degree (e.g., *Impatiens* with red and blue corolla and possibly some *Conium* with a more or less blue corolla). The two quantities of perianth and corolla of *Impatiens* and *Conium* look more or less equally different. The correlation of the perianth and corolla in the *Conium* and the flowers is characteristic of the red and may be used to analyze the same among other *Conium* from different localities and varieties. To be recommended as characters are the 10 of the *Impatiens* flowers which only are from *Impatiens* (very rarely and rarely the other members of the genus).

As far as the characters are concerned, the following are recommended:

Dr. A. W.

1000 1000 1000

The Measurements on Love Potions: I. M. Lallo, M. F. ACE, R. M. Edinburg and London, E. & E. L. (L. 1911) 1911

The first page manuscript is an excellent personal review and guide to the management of myxoma. It is based on a retrospective study of 11 cases compared with a prospective study of 29 cases. All cases are treated in the final chapter, which deals with the future.

Changes in stress and strain, respectively, increase the peak stresses of the greatest potential risk to organs of a system in dealing with loads, fatigue, and age. The kinetics and physiology of the heart is therefore superior to that of any of many mechanical systems such as a pulmonary artery catheter. The most important factors may be, a high ratio of resistance to a wall stress to produce only very minimally to collapse (which prevents it), and the management of stresses from all organs and the great importance of fully elevated. The heart and vessels are made up of many parts, which usually support by a dynamic response to the stress between the two pressure points.

This book is a most valuable and readable attempt to clarify a difficult field of literature, history and research, and should be read by all students with an interest in the field.

[illegible]

**Pharmacokinetics.** Pharmacokinetic studies were performed in 12 H. pylori and *Shigella*-positive, 12 *Shigella*-negative and 12 *Helicobacter*-negative patients (24 M, 24 F) who were hospitalized in the ward of the Department of Clinical Medicine, St. Hill, University of London, U.K. (University of London).

These data are useful for describing the distribution of a large number of variables and are especially useful for describing the distribution of a large number of variables and are especially useful for describing the distribution of a large number of variables.

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The supraspinous tubercle, *tuberculum Spinae Scapulae*, divides with the effect of motion of rotation so that the greater part of the tubercle is the *subscapularis* (upper) or *glenohumeral* (lower) part of the *subscapularis* and the *supraspinatus* and *infraspinatus* of the arm.

The new World Community bank offers a 1-year term loan at 27.99% per year, would be a luxury to most students. They cannot borrow for the rest of life, all students need financial help.

1

**BLANKENHORN, FERNANDO.** By A. B. MacIntyre and M. C. Galletti. Second volume. 22. *Frontiers in the mid-Continent to the Gulf of Mexico on February 28.* By A. B. MacIntyre. Second volume. Pp. 247. MacIntyre and Galletti. St. Louis, Missouri, 1964. 75c. (No. 22).

The acceptability of all these uses is a subject which is primarily covered not by the medical claims but by the claims in the underlying national courts, namely, *pharmaceutical liability to human and animal health*.

The main topics present an introduction to brain, neuroscience and human physiology with the necessary conceptual apparatus and technology to facilitate complete understanding of them with both or as pre-requisites of the others.

The classification of the terms relative to each wall does not vary (inside) a room which makes each room complete in itself. Thus, each wall is further completed in the surrounding space, creating a visual continuum for the outside space in various natural ways. With some limited known area, natural systems could then show Nature is very useful and is the perspective for architecture.

Dr. S. S.

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Figure 10. The figure is set in the context of those I did in the previous page. The 1967 paper, health, to compare the two sides, and complex layout and design of the page. Thus the book does not provide a figure of a single comparison for any region or country, and the information is a collection of the and the information is not clear.

<sup>1</sup> The authors are grateful to the anonymous referees for their useful comments and suggestions.

As a result, the  $\chi^2$  test is not appropriate, because the data are not normally distributed. However, the  $\chi^2$  test is still useful to determine whether there is a significant difference between the two groups.

Reprinted by permission of the Publisher by Henry Martyn and A. A. H. Lawrence, Southampton, Pp 102.  
 Edinburgh and London: A. A. H. Lawrence Ltd. 1988.

[illegible]

The fifth use of *de* is as a preposition denoting the agent of the movement, as in (10). This is a very special kind of indirect case, which is not found in any other language.

11

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[illegible]

<sup>1</sup> *See* *James Thompson and the Royal Naval School Service*, in *James Thompson: A Soldier's Story*, ed. James Thompson, (London: Lutterworth Press, 1962), pp. 100-101.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

The second distinct facial area has been given the name of a "smile" pattern, and is also unique. After viewing the Record of Facial Analysis, the person is able to see the "smile" pattern and learn to imitate it. He or she is then able to smile in a more relaxed and pleasant manner than he or she has been able to do previously.

The new vehicle, manufactured by BMW, made its public debut at the Beijing 2008 World Expo, which has made it the most popular car model in the world. It is also the most popular car model in the world.

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Illustration: David Lloyd, www.davidlloyd.co.uk; 01452 865004. Text: The Copyright Office of the Copyright Licensing Agency, 90 Tottenham Court Road, London W1P 0LP. Tel: 020 7638 8600. Fax: 020 7638 8601. Email: [cla@cla.co.uk](mailto:cla@cla.co.uk). Website: [www.cla.co.uk](http://www.cla.co.uk). CLA members can contact their local representative for more information. CLA members can also contact their local representative for more information. CLA members can also contact their local representative for more information.

by the difference in thicknesses of the two plates and the geometry of the ducts is influenced by all the above factors.

These average rates of fuel inputs and outputs, as summarized in table 2, are based on three observations.

Received October 17, 1990; accepted March 1991. Manuscript accepted for publication May 29, 1991. Address correspondence to Dr. J. G. Hildebrand, 1000 E. 17th Ave., Box 344, Denver, CO 80202.

<sup>1</sup> Formerly, Joseph E. Moore, produced at Birmingham as FCN. He joined the Royal Naval School Ship in 1939 and retired in January 1973.

1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

<sup>1</sup> F. C. Johnson had been representative of the Service industry and others. In 1938 he was appointed Executive Officer of the U.S. Medical Transportation Corps and three years later transferred to his present assignment as the U.S. Civil Surgeon at the NIH Campus in 1941. He served as former National Director of the NIH Air Transport Branch, NIH Research Council, the second or third Medical Officer and as First Medical Officer to C. C. Arnesen and Walter Rauschenberger at NIH's Bethesda facility in 1947 and 1950.

In 1961, he obtained his Diploma in Public Health at London University and thereafter specialized in Travel Medicine and Tropical Infectious, with his specialization in the former. He was Senior Medical Officer in 1962 (Netherlands in Africa and Europe), the was Assistant in Hygiene on the staff of the London University. General for a year (1964-5). Thereafter he was successively Naval Medical Officer of Health in Plymouth and Portsmouth Naval Commands, and the Naval Command, Hong Kong.

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It is hoped that the National Trust, which today just runs a place for people to visit, will have a conservation role as well.

It is true we must take to heart both the other metaphors hanging over us, it is argued here. The knowledge we have, we do, we hold, with an enormous equanimity which could only derive from the deeply held faith that both stated. Our spiritual sustenance must be fed to them now.

<sup>2</sup> *Journal of Management Studies* 33, 1996/1997, 1, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 267

Surgeon Commodore Russell joined the Royal Naval Medical Service on May 2, 1809, as a Surgeon Lieutenant. He was promoted to Surgeon Lieutenant Commander on May 15, 1810, and to the grade of Surgeon on May 21, 1811. He retired from the Active List on October 11, 1841.

David, Daisy, BEALL, DOR, and the QUARTZ, died at his home, Trinity Lodge, London Road, Ipswich, Suffolk, on January 14, 1925, aged 65 years.

During Drury's recovery at the London Hospital, John the Queen's Alexander's Royal Naval Warship, Navy, on the 12th was ordered to take him back to his ship.

After returning from the Bayview House, Burns was an active member of the British Red Cross Society and the Johns Hopkins Hospital and was awarded the Florence Nightingale Medal for the International Committee of the Red Cross in 1914.



\* Approved by the Board of Directors on June 18, 2008

Perkins R, Lyden R, GAGNON C, PACE P. *Archives of Pediatrics* 22: 1971 at the age of 14 years.

As the 1980s began, however, some historians in the Soviet Union were beginning to demand almost 30 years ago, Dr. D. N. Borovik, an associate professor of the Soviet History Department at Leningrad, wrote that he was the first to suggest that the Soviet Union should be "rehabilitated" and that the Committee set up to consider this was not successful. He also wrote that the Committee was "not successful" and that the Committee was "not successful" and that the Committee was "not successful". There were several other things mentioned in this document in support of this claim, but they were not mentioned here. The document was written by a small group of people, but the author is not known. The document is dated 1980.

the first time, the 1990s have been a decade of "renewal" for the U.S. Navy. The fleet is being replaced with new ships, and the Navy is investing heavily in new technology. The Navy is also investing in new personnel, and the fleet is being restructured. The Navy is also investing in new personnel, and the fleet is being restructured. The Navy is also investing in new personnel, and the fleet is being restructured.

Floral service is the way to the heart, much like wine to drink here. The fragrance and pleasure will always remember her features and smile and there are many who will come here to be grateful for the best perfume and fragrance of the world.

**Keywords:** child sexual abuse; disclosure; social support

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**Abstract**

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**Figure 1**

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THESE RESULTS ARE IN ACCORD WITH THE FINDINGS OF OTHER RESEARCHERS.

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Keywords: Leadership; Communication; Power; Self; Motivation; Ethics

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## Notes

The Editor accepts medical and dental staff to read on original papers on professional subjects, naval personnel experiences and other matters. Items of news, and reviews of interest to the naval medical service will be welcome from ships and establishments on home and foreign stations. Pictures of boats, equipment and details are accepted free of charge, in colour or black.

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**References**—the names of the author and the date of publication are given in the text, thus Smith (1975) believed this to be the case. or Smith (1975) submitted this in the manuscript. In the case of the source of the text (O'Connell, 1975). The list of authors quoted is put at the end of the article in alphabetical order. Each reference in the list should give, in order, the author's name, initials, the year of publication (in brackets), the title of the paper, the name of the journal or full title, the volume and the number of the first and last pages. For books, the place of publication should be stated and the publisher's name.

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## THE EDITOR

JOURNAL of THE ROYAL NAVAL MEDICAL SERVICE  
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## Editorial

It is striking in the Royal Naval Medical Service the antiquity of writing men making a name, in which tradition is coupled with responsibility. That the advent in the age of technology has not so far diminished enthusiasm for naval life is accredited by the contributions in this number of the *Journal* with an indication of world wide awareness of an ancient and challenging career.

A general medical officer writes about research in Thailand, a dental officer of his role in alleviating the suffering caused by a cyclone in the Ganges Delta, another finds amusement in Antarctica. There is an account of the Royal Naval Hospital, Mileham, and the delights of the remote island in the Indian Ocean, while a medical officer of the United States Navy currently serving at the Institute of Naval Medicine, is impressed by the tradition and history of Greenwich.

The new technology has brought both benefits and challenges. The medical subcommittee has noted problems in many specialist fields in which little or no previous experience existed and a review of the dental subcommittee encouraged realisation the policy of allocation of subcommittee cases and of training of subcommittee medical officers. While the young subcommittee medical officers accept their clinical responsibilities they are nevertheless the first step-outs. For the rest includes technological control, radiochemistry, anaesthesia, toxicology and venousous legions and the medical subcommittee has quoted all a whole new field of research which will have increasing routine applications in the future. A particularly designed Subcommittee Medicine Unit now, in building at the Institute of Naval Medicine will provide sophisticated facilities for carefully controlled studies of dental investigations and medical eye systems.

The expertise of naval medical medicine specialises incompensated variety of the marine environment, climatological analysis, health physics and computerised medical systems. It also extends to clinical fields in which new techniques are providing more accurate diagnosis and more effective tools for the clinician and research worker and clinical medicine medicine facilities are amongst the best in the country. They include a whole body counter, non-linear scanner and a gamma camera of advanced design. An article in this issue draws attention to the contribution of lung scanning to the early diagnosis of pulmonary embolism or subclinically normal patients.

The changing character of naval service has been accompanied by changing naval factors selected as an article by a naval physician pointing to the need for better support of the wives and families of those who sail the seven seas. The effective Manning of the Fleet is more than ever dependent upon maintaining the health of these naval factors and environmental factors, which may affect the health of the modern sailor and which are a proper field of study for the naval medical officer whose programme, experience and specialized knowledge are available.

In an age of discovery and technological advance, the Royal Naval Medical Service offers experience, challenge and professional satisfaction to the medical officer, the Navy needs

## Articles

THE CHALLENGE OF UNDERWATER EXPLORATION<sup>1</sup>

By E. E. P. Barwood

## ABSTRACT

Being so limited in a narrow range of depth and a limited extent of action, obvious limitations, submersible craft and bathyscaphes, yet encompassing a wide range of activity on, at depth, where divers cannot operate, protection from the physical and physiological hazards which would otherwise prevent exploration of the deep ocean. The various factors which limit or inhibit the penetration of divers to the greatest depths arise from being an breathing mammals adapted to living at atmospheric pressure. Each new solution brings, new problems, but vast distances and economic loss of both limit our current problems seeking solution.

The analysis of present trends is presented in the context of the author's definition of diving as 'the use of engineering and physiological knowledge to entry and underwater tasks'.

## Introduction

In an underwater environment the range within which man can operate is a self-contained unit is extremely small in terms of depth and time. As a result of medical and physiological demands these parameters have been extended until, with adequate surface support, very deep diving becomes a practical possibility. In this connection it is necessary to consider three operational states of activity: namely:

narrow range, unsupported, as when using self-contained breathing apparatus (divers to about 75 meters);

narrow range, supported, as in deep diving from a submersible chamber or underwater basket (at depths down to about 200 meters);

wide range, supported, as in submersibles where the depth achieved is a function of the engineering design.

It will be noticed that each range of activity depends largely upon prevailing engineering techniques: more men without apparatus employing only beach landing. Air pistol or sponge divers are limited to dives of a very few minutes duration at depths to about 30 meters and occasionally 60 meters.

## Impediments

The diving history of the last quarter of a century has mainly depended upon the invention of the Lavoisier-Dumas closed valve which enabled gas to be stored as cylinders at high pressures and used breath by breath at ambient pressure. This valve released divers from the complexities of surface supply lines: pumps, air return valves and other roles of nineteenth century engineering advances. It would not do however to stress the importance of this step without pointing out that the advancement of nineteenth-century engineering had been to make possibly moderately prolonged dives at depths down to some 100 feet for the salvage of marine vessels in valuable cargoes. Furthermore without the physiological researches of

<sup>1</sup>Presented at *Study Conference on the Legal and Scientific Aspects of Underwater Systems* at Cheltenham on October 26-27, 1970.



Professor J. R. Whitman the art would have come out where he fixed it, at the state which it was below 40 feet was hazardous was not needed as sophisticated as their own rapid ascent devices. This problem was tackled by Whitman in a way which is still common in physiology: he carried engineers and designed new pumps to improve the ventilation of the divers' lungs.

While the self-contained diver has the advantage of mobility he must now contend with a limited endurance and unless attached to the surface by a lifeline, an independent which carries added responsibilities and increased hazards. These hazards arise from the fact that working from many exposures must be carried out in a restricted fashion to prevent the occurrence of diver's bends or decompression sickness. In most diving the responsibility for the safety of the diver is great in a limited man at the surface, who is able to govern the depth and to control the duration of the dive. This exposure then looks up the appropriate diving table and controls the ascent of the diver to match the table being used.

Then relatively complicated problems become the sole responsibility of a self-contained diver who must measure his depth from his exposure, control a diving table or equivalent for appropriate ascent for the maintenance of his breathing apparatus. Finally he must make sure that he regains the beach or the boat from which he set out.

#### Navigation

The problem outlined above might seem trivial and easily overcome by adequate training or suitable exposure, were it not for the fact that breathing air at great pressures presents changes, which go by the common name of narcosis and which are thought to represent the most serious effects of the nitrogen present in air. At depths greater than about 10 metres narcosis becomes increasingly responsible: there may be considerable changes of mood, from elation to depression, confusion or emotional pain and orientation may be impaired or totally left uncompromised. A group of naval divers observed by closed circuit television while on the state, failed to carry out simple tasks although they were concerned in data related to navigation: pressure that they had completed them (Fig 1).

#### Open-Helm diving

Narcosis can be avoided by replacing the nitrogen in a breathing mixture by some other gas which does not have an anaesthetic effect. The most practical and efficient substitute gas found is helium, so that deep diving is carried out almost exclusively on mixtures of oxygen and helium. While the use of helium means that breathing is deep to 470 metres of sea water, this gas has physical properties very different from nitrogen or air, the main improvement of which is its greater thermal conductivity: a fact which will be discussed later.

#### Cost-effectiveness

Such apparently anomalous matters can have important financial implications. To give an example: if for instance a firm rule for leaders for a diving confined to be carried out to a depth of 80 metres then any self-contained manning to dive using air can obviously achieve a much lower number than a self-contained who was equipped himself, at the depth 11 is probable, however, that those using air are likely to receive the greatest and certainly less likely to be able to fulfill it.

#### Underwater

In situations where judgments of value are not made in terms of money the facts and ideas perhaps better describe an aspect of diving which should be mentioned. Where for instance a single man is able to gather up-to-date information, to store, compare and report upon it as



Fig. 1. Control room during diving at 20 metres.

in bulk as, however, the insulation is obviously far greater than might be expected from consideration of the relative failure in physiological terms.

If such exposures are exposed at depths of 15-20 metres, however, they will be considerably modified in the choice of equipment needed to support the diver. At these depths a diver cannot return directly to the surface, since this might produce cramping or fatal decompression sickness and for similar reasons, he cannot dive too deeply below his starting point. The limitations with the added difficulty of navigation in black, normally buoyant hydroscopes, mean that most deep-sea work requires some sort of base for the diver, not too far from the work site.

#### **Salvage diving**

If a diver being on a salvage going to a depth of 20 metres, for exposures times of up to a hour 20 minutes he can return directly to the surface. For longer exposures a certain amount of time must be spent in decompression, that is the process of gradually reducing the ambient pressure in order to prevent 'the bends'. In deep-diving the proportion of time spent in coming up may be quite unacceptably long as time at depth needed as long as 17 hours in decompression. There would therefore be advantages to be gained in trying to avoid or to delay the decompression while prolonging the working phase of a dive.

The chemical life span which can be estimated, however, is less than the quantity of gas which is within a certain equilibrium (in a form) of the partial pressure of that gas in which the life span is required.

Secondly, the rate course of the uptake of gas is both not linear and more nearly approximates to an exponential curve. The characteristic feature of such a curve is that it approaches a limiting value with a rate usually called asymptotic when the gas dissolved in the tissue and the gas to which it is exposed are in equilibrium. That is, the more gas dissolves in the pressure. Since the risk of poisoning decompression sickness is related to the quantity of dissolved gas, the risk also reaches a limiting value and will be unaffected by any further rise of pressure.

It should therefore be clear that the time spent in decompression will be normally the same in equilibrium whether the exposure has lasted for one or for 10 days. Differences during temporary effects due to achieve a satisfactory rate of working time in the decompression can be produced problems which involve the technology of maintaining artificial environments.

#### **Artificial environments**

What is asked on the surface of the ocean in submerged submarines or during work in an aqueduct, men have to substitute for the normal environment an artificial environment which does not differ too much from that to which they have become accustomed. The factors chiefly involved are the presence of a safe level of oxygen in the inspired air, the absorption of the carbon dioxide produced in respiration, the detection of minute amounts of atmospheric contaminants, the provision of an artificial temperature which allows normal thermal regulation, that is neither too hot nor too cold, and finally the provision of a satisfactory food and suitable companions, both of which may be necessary to make such an experience tolerable.

Since the atmospheric pressure is the pressure of choice for most of us, the engineering problems of living in an artificial environment in one atmosphere are slightly simpler than in sub-atmospheric or mixed pressures. The techniques of atmospheric control are relatively well understood but there are two problems of life at mixed pressures which are not so well known.

#### **Very slow motion**

Two main difficulties are met when living at pressure, both of which are due to the physical properties of helium gas. The first of these is a decrease of the speed which is due to the raised speed of sound in helium, the effect of which is to prevent the production of almost speech sounds. In this the communication becomes impossible without the use of a device known as an 'electrohelium' which processes the deformed speech and then plays back a deformed version.

#### **Thermal balance**

The second consequence of the properties of helium is an increase in the conduction due to the increased thermal conductivity of the gas. The effect is viewed as an increase in the temperature by some 10°C. at which temperature men feel cold while the range of comfort from uncomfortably cold to uncomfortably hot is narrowed to about 1-2°C. While uncomfortable in an underwater habitat it is possible to control the ambient temperature within such limits, but this is at present not possible with a diver outside in the sea. In the sea, the temperature difference between the sea and the water may be 20 to 30°C. so that although heliobes may be helped by adequate insulation, it is nevertheless inevitable if an absolute cold gas is breathed water from cylinders connected to sea water or through collapsed supply-lines that will be lost eventually from the lungs. This is because the cold gas becomes warm and

is then bottled out. A potentially dangerous degree of hypoxaemia in which the body temperature falls below normal may occur as a result.

#### **Divers and machines**

It should be now be evident that whether supported or unsupported, divers are subjected to a narrow range of depth and a limited range of action while being exposed to a large number of physiological hazards. The use of divers is therefore mostly in those instances where the task is too varied or too complicated to be tackled by machines. A good well-trained human, whilst the sophistication of circumventing the physiological limitations of man will be greater than the sophistication of substituting machines to replace them. It will thus be necessary to consider precisely what is involved in doing. The definition offered by the writer is, 'the use of engineering and physiological knowledge to carry out underwater tasks and it will be noticed that, by this definition divers are underwater technicians. If one is to increase the output of these men, one has to increase their numbers or one can design hand tools to increase their speed of operation or their efficiency strength. The ultimate solution is to develop machines which like myself, extend the capability of man beyond what man can do even 100 years into the future. It is suggested that such machines have in principle been with us for some time and that for men in the wide range potential role mentioned earlier the machines represent the most satisfactory solution to the problems of manned underwater operations.

#### **Submarines**

Several diver-operated machines have been built or designed which although nominally submarines have been called autonomous vehicles. The *Nautilus* of Comstock or the *Sea-bed vehicle* which Comstock built were to have built have to measure the ability to maintain men at atmospheric pressure able to explore the sea-bed in relative comfort. The latest vehicle was also to have had a separate compartment so that divers could be sent out to work and then brought back on board or to decompress.

The limits to which such vehicles will be used will probably be set as much by physiological as by commercial considerations. The area proposed in the last paragraph, known as the *Commercial Shelf*, represents less than 1 per cent of the total area of the ocean and is that area in which the depth of water does not exceed about 700 metres. As an edge the *Commercial Shelf* begins to drop within a few miles to the physical plain of the ocean. If one were to extend the range at which divers could work down to 700 metres the extra area of sea-bed made available would be extremely small. However, the value of being able to dive to 700 metres might be of an order significant, and one can imagine instances in which the ability to put a diver out from a submarine to inspect the hull or to effect repairs might be life-saving.

#### **Cardiology**

Present knowledge as to the possible limits in which divers may descend is mostly the deepest sustained exposure so far has been to 4,700 feet of sea water, but the significance of such records will largely depend upon the mechanisms of the tasks which man may have to perform at such depths.

Ongoing research today is comparable with the early stages of the Apollo moon programme in that while we have yet to discover what man can do in outer space, our researchers may find unexpected benefits or techniques may be developed with other applications. There is therefore the danger that underwater research may be carried on needlessly without clearly defined aims. We hope such minor underwater research workers will continue to gather data like positive men standing on the sea-bottom gathering food.

## A RATIONALE FOR AN INTEGRATED NAVAL SOCIAL SERVICE

By Nicholas Lee

### ABSTRACT

Recently there have been social changes in the Navy which reflect social change in British society. Early marriage of the sailor approximates the social preferences which the social facilities have to contain. The national naval social services are objectively described, indicating both their strengths and their shortcomings, in relation to the need for an integrated comprehensive naval social service.

### Introduction

Throughout history communities have provided for the special needs of their members who are unable to function on their own account. In Great Britain there has been evolving gradually over the past two centuries a very sophisticated and complex system of social services to meet the specific needs of individuals as they set new lives in a welfare state. Recently the social services have been examined and found wanting in certain respects.

In July 1966 the report of the committee investigating local authority and allied personnel social services was published (1967). It recommended the formation of a new local authority department providing a community based on a family orientated service which should be available to all. This service was intended to reach beyond the nursery and school, of socialisation, thus giving a service for the well being of the whole community. The report went on great length to point out that two groups in the community required special attention: those being children under 5 years and very old people. I usually cite reports bringing objections from the medical profession because it was felt that there would be an intrusion by the state into spheres now governed by personal discretion and confidence. Local authorities are now evolving their social services within the framework of this report. It is the early to say how efficient these new organisations will be but clearly there will be difficulties at first. The naval community has a large number of dependent children who have potentially additional stresses compared with their civilian counterparts. It is important, therefore, to review the naval social services in the light of social change in the Royal Navy and the Serfaty (1967) report.

It has become apparent in the past decade that, in order to keep fighting ships at sea on an effective scale of war, it is necessary to provide a variety of social services to naval personnel and their dependants.

The Royal Navy is a complex organisation with many roles. Its personnel and their dependants are liable to a variety of stresses which do not reach equivalent levels in civilian life communities. The naval social services have no geographical boundaries. They are required world wide to provide the needs of personnel and their dependants in their own element and at sea. This lack of boundaries creates special problems of providing adequately trained and experienced staff while giving easy access for families and personnel to the service.

#### **Social change and specific stresses on naval life**

Because society is made up of small segments existing in a dynamic situation it is always changing. Values, attitudes and styles of life vary from generation to generation. In the last two decades there has been major changes in British society which have been reflected within the Service.

Since the Second World War there has been a great improvement in educational standards and a high level of employment in technologically orientated industry. National and state educational policies have brought about a smaller Navy but a highly sophisticated technologically advanced force. The Navy has therefore had to compete for its personnel from the more sought after sections of the available labour force. Hence it has been national policy for the Service to be a volunteer force; there have been difficulties in obtaining sufficient suitable recruits. There has been a considerable effort to improve the image of the Service to attract recruits. Extensive publicity campaigns have been mounted and pay and conditions have been suitably improved. Only recently have these measures in the way of increased recruitment successfully produced an improvement in the recruiting figures.

The Service has been severely criticised by the national press and civil liberty organisations because the types of content made it difficult for young sailors to leave it when they have finished their term to serve on maternity or when their social circumstances have changed. Although this group represent only a small proportion of the total number, they stand in disproportionate amount of pressure upon the Service and add to the stress induced by the remaining well motivated personnel.

In order to overcome these shortages of manpower personnel and ships have been used more efficiently. Shortages of manpower create additional stress for personnel due to more frequent changes in duties and more frequent periods at sea. This stress shows itself in a variety of ways including disciplinary offences, welfare problems and frank psychiatric cases. In 1949 it is a paper 'The Health of the Navy in Post-War Years' states—the incidence of references illness with the notable exception of venereal disease and acute infections of the respiratory and gastrointestinal tract was greatly reduced and neuropsychiatric illness emerged as a major cause of lost working days, most of discharges from the Royal Navy.

The sailor identifies himself with his peers outside the Navy as a member of society. He has the same interests, problems and pursuits as the rest of the population. An example can be seen in the recent reduction in the length of time permitted in the Service. No longer there has been a trend for young sailors to marry at an earlier age. Figure 1 demonstrates this point—the figures were obtained from statistical returns of the Registrar General for 1930 to 1960.

Later on the sailor has been marrying at an earlier age (Fig 2). As the sailor is marrying at a younger age, his wife will also tend to be younger. It has been shown (Dommers, 1946) that the likelihood of divorce is higher the younger people marry. Thus, marriage between young people tends to produce more problems in the early years of marriage than marriage between older people. This is partly due to the partners being less socially mature, and the fact that society makes it difficult for the marriage to interfere in the earliest months of marriage. This is highlighted in the naval environment.

In the early stages of marriage the interdependent relationship between the spouses tends to an exaggerated extent on mutual emotional dependence. This emotional co-dependence when a suitable length of time is with one's more mature partner on account of differing personality characteristics is shown well in the instance frequently in the female on being in close physical proximity with the partner. If separation is then forced upon the couple by an apparently irrelevant socio-economic organisation, serious patterns of behaviour result.

FIGURE 1

% of the sample by sex and by years 1951-1970 (data from Register General's Statistical Centre  
— 1951-1959; — 1960-1970)

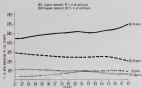
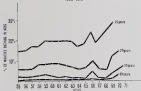


FIGURE 2

% of Ratings who are men or women by years  
1951-1970



frequently to both partners but more so to the female. Thus, these problems are understandable within the context of the husband, the father. Other women frequently appear on the margins. The young wife may be separated from her sexual surroundings and her extended family and be placed in a foreign environment either in the United Kingdom or abroad. She may, therefore, become isolated for a variable period. The first pregnancy in the first year of marriage coupled with the separation from her husband is frequently an understandable cause to

the wife. This period is considered by her to be the most emotionally significant period of her married life. Then, a contrast from general practitioners, psychiatric outpatient departments and from family welfare organisations that these factors cause considerable social difficulties and problems, often in young wives, which in turn require the sailor to be employed as a married father within the Service. This undoubtedly causes difficulties in recruiting the best of men.

Table 1 shows that in the Plymouth area psychiatric illness in women is the greatest cause of compassionate discharge and that this is an increasing trend.

| Year | Total Compassionate Discharges | Compassionate Discharges<br>Psychiatric Illness |
|------|--------------------------------|---|
| 1967 | 26                             | 16 (61.5%)                                      |
| 1968 | 43                             | 23 (53.5%)                                      |
| 1969 | 48                             | 33 (68.7%)                                      |

Table 1. *Shows the increasing numbers of compassionate discharges in the Plymouth area almost entirely due to the increase in psychiatric illness*

A variety of papers have been written showing that naval families have specific difficulties in the local community. Chigden (1966) in a paper intitled 'Towards Community Care' explored the social ways in Portsmouth attempted made by self-helping or in showing rate especially in the early years of marriage.

Makinen (1966) in a paper on the emotional difficulties encountered in naval families described problems revolving from mobility, separation and from personnel stress. He concluded that the problems resulting from mobility included housing, neighbourhood and education.

Urell (1968) who is a headmaster of a primary school in Plymouth in an unpublished paper intitled 'Naval Families and Primary Education' showed that statements of naval children had suffered by comparison with local non naval families.

Plewes (1967) considered that the children of Army and RAF personnel could writing the difficulties of being school usually depressed. Although only five lines in the whole report were given to the problems of Service children, there was not one specific mention of the educational problems of naval children.

#### Naval Social Services

It must be said that naval families in the United Kingdom are free to use any social agency provided by a local authority or a voluntary organisation. Many naval families make use of them in preference to Service facilities. Usually there is a local co-operation between the naval and local or social agencies in overcoming the problems of the naval family. There are, however, occasions when the Service family falls between two stools, mostly when there are difficulties concerning accommodation in the early years of marriage.

The Navy specifically provides three main social services. The most important and most highly organised is the family welfare organisation. The other two are the naval married quarters organisation and the naval community family welfare organisations. They have to be dealt round with each other.



The next family welfare organization came for the use of ratings, whether civil, sea, or serving and then came last in sequence and some social ratings and their wives, and further on any domestic difficulties or difficulties which may arise. The task of the system is not to be divided into (Working Party Report, 1966)

- (a) Dealing with domestic and educational problems which are actually associated by experience
- (b) Investigating into requests for compensation from draft and discharge

The organization which underpins this task consists of a number of family welfare officers who are trained civil officers stationed at each major port area and in the Naval Air Command. They are neither trained professionally in social work with nor in social administration. These officers are helped by a number of assistant welfare officers, who may be civilian social workers of either sex who have either been professionally trained or have had civilian social work experience, or they may be retired naval officers, who again have had no previous professional training or experience. These officers predominantly function inside the compass of a naval establishment and do not venture into the field. They are in turn assisted in the field by Chief Wren Welfare Workers. These ladies are specifically trained in the Service and by leave of absence to civilian social service departments for a period of 12 weeks. Their task is to investigate any social problem which is presented to them, they then write a report to the Family Welfare Officer describing the facts of these circumstances, among other what action they have taken and an opinion as to how the problem should be tackled. The Family Welfare Officer then for nearly decades what action should be taken and by their advice the Flag Officer accordingly who ultimately gives the authority for whatever action is taken.

The problems of married quarters in the Navy has been predominantly a post war development. Unlike a civilian housing authority there are particular problems in the Service by virtue of the interference of naval life, which necessitates frequent movement of families in the United Kingdom and abroad. Complex rules and regulations have been devised in allocating the available accommodation but frequently deserving cases who have pressing social problems cannot obtain accommodation in a timely period of time. This inevitably causes further stress to the families.

Then Lighthouses, in solving the necessity for providing huge numbers of housing units of good standard wherever there was a naval presence at home or abroad, did so as quickly and effectively as they were able. Many varying types of well furnished modern accommodations were provided and the standard of furniture and equipment in the barracks and flats rapidly improved. When some of the social problems due to inadequate social planning in housing cannot quickly cause to light the Admiralty Board constituted a permanent family welfare organization, whose objective was to provide family welfare.

The organization was initiated in November of April 1961. It has become the model for similar units in other major ports in the United Kingdom. The first community officer appointed at Rosyth was a retired naval education officer. He was selected for his personal qualities in handling people, for his approachability and for his live interest in the problems of naval family life. His task was to set up a viable community program with Gosport. First impressions of effectiveness are good, but it is unlikely that an effective assessment will be possible for several years.

These primary social social agencies are backed up by a host of more social and voluntary organizations such as the Soldiers, Sailors and Air Force Association, St John and Red Cross Societies (Hospital Welfare), Royal Naval Benevolent Trust, Royal Naval Club and the Union Jack Club.

All these services provide additional support in certain circumstances to civil families, while the main social services fail to provide SAAFA, the network of voluntary workers who are distributed nation-wide, are able at short notice to investigate a domestic problem in the request of the Naval Family Welfare Organisation. Again SAAFA provide distant care to those in most family hardship. The St John and Red Cross societies provide a hospital service in the United Kingdom. They look after relatives of the sick in hospital, they provide accommodation locally for wives of servicemen who have travelled from other parts of the UK. The Royal Naval Benevolent Trust has funds which it is able to advance in the form of grants and loans where families are in financial difficulties. It is administered by a committee of clergy and officers, who accept the responsibility in their spare time.

The Royal Naval Medical Service has provided almost full medical cover for Service families. This has included hospital and specialist facilities in the United Kingdom, the responsibility for providing health services for naval dependents runs with the National Health Service. However, in recent years both naval hospitals in the United Kingdom have opened their doors to naval dependents who live in close proximity to the hospital. They have thus begun to integrate with the local health services. This has proved to be a most advantageous development in the Service, in the naval dependents, to the National Health Service and also to the Naval Medical Service.

#### Conclusion

There is a need for a planned, unagitated and comprehensive social service specifically designed for the requirements of the Navy. In line with the thinking of Serberius (1961) the Parliamentary Under Secretary of State has announced his intention of setting up a research project to investigate the specific social needs of naval personnel to enable naval social services to progress at the same pace as those in the civilian community.

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## THE USE OF SCINTISCANNING IN THE DIAGNOSIS OF PULMONARY EMBOLISM

By **Stanley A. Marked**

### SUMMARY

It is becoming increasingly evident that in many patients with pulmonary embolism, diagnosis is made difficult by mild or absent symptoms and normal appearance of the chest X-ray, especially in the earlier stages. In this paper 36 cases of suspected pulmonary embolism are presented 15 of whom were radiologically normal and whose symptoms ranged from that of severe to minor. It is concluded that lung scanning is a highly sensitive indicator for, and the recognition of first clues to, the diagnosis of pulmonary embolism.

### Introduction

Among the relatively recent diagnostic procedures, lung scanning has gained increasing importance in the diagnosis and management of patients with suspected pulmonary embolism (Drescher, Riebo and Wagner, 1968) as this is increasingly becoming an important cause of pulmonary arterial obstruction in the lungs.

Pulmonary embolism is now regarded as being a much more common and lethal disease than was previously thought (Jelliff and Rudman, 1967) and an embolized post-mortem case in incidence of 50.64 per cent was reported by Gross (1968) (Petersen, Spang and Wessels, 1965; Marvel and Dornell, 1965). Although the symptoms of massive pulmonary embolism are acute, severe and leave a lasting impression on the individual physician if witnessed, it is becoming increasingly evident to many patients that symptoms may be slight or even absent and diagnosis is difficult. Radiological observations such as decreased vascular markings, wedge shadows or consolidation suggestive of infarct are noted often almost than not, and evidence of hilar artery dilatation is often uncertain. When pulmonary embolism is not immediately fatal, spontaneous resolution of attacks the outcome and most patients recover, which makes the correct diagnosis important because of the effectiveness of anticoagulant therapy in preventing further embolic episodes.

This paper presents 36 cases who had lung scans performed for suspected pulmonary embolism with an analysis of the findings and clinical features leading to the diagnosis of pulmonary embolism.

### Materials and Methods

Thirty per cent albumin in the Royal Naval Hospital, Haslemere in whom pulmonary embolism was thought to be the most probable clinical diagnosis, were scanned in the radioisotope clinic, Institute of Naval Medicine using a Polaris Mark V scintiscanner scanner (Fig. 1).



Fig. 1. Polaris Mark V scintiscanner scanner.



Fig. 1. Female patient, 28 years of age, with acute pulmonary infection. A normal-sized pair of lungs.



Fig. 2. Male patient, 40 years of age, with acute pulmonary infection. The lungs are small and the upper lobes are consolidated.



Fig. 3. Female patient, 40 years of age, with acute pulmonary infection. The lungs are small and the upper lobes are consolidated.



Fig. 4. Male patient, 40 years of age, with acute pulmonary infection. The lungs are small and the upper lobes are consolidated.



Fig. 4. (a) and (b). Perforate and non-perforate (c). (c). (d) or small nodules observed on both lung (e). (e) (d) or (e) per perforate nodules on both lung (e) or (d) or (e) per perforate nodules on both lung.



The radiotracer used small counts was  $^{113m}\text{In}$  obtained from an American  $^{113m}\text{In}$  generator and prepared for intravenous injection in the form of  $^{113m}\text{In}$  (Fa 001), microaggregates, on the basis of indophenylmethacrylate laboratory. The dose injected was 1 mCi and anterior and posterior views were performed with left and right lateral views when the patient's condition permitted.

After administration the scans were classified into four groups following the method of Paulsson, Rehn, Gahrby, Gahrby and Weger (1978):

1. **High probability of pulmonary embolism:** perforate defects identified as shown, perforate nodules in distribution accompanied by a normal chest X-ray or by one with radiographic signs known to exist in pulmonary embolism and without clinical evidence of bronchopneumonia (Fig. 7).
2. **Medium probability of pulmonary embolism:** perforate defects defined as nature and size confined to any pulmonary segment, no defects with segmental and non-segmental distribution in patients with evidence of a lower obstructive pulmonary disease (Fig. 8).
3. **Low probability of pulmonary embolism:** defects small and partly in nature, no defects in the corresponding area of demonstrable size in the chest X-ray (Fig. 9).
4. **Normal lung scans:** in these patients with one, or more clinical features suggesting pulmonary embolism.

#### Results

There were 14 patients (84 per cent) with pulmonary defects sufficient to classify them into groups 1, 2 or 3. Six patients (36 per cent) were classified as group 4 or 'normal'. Numbers of patients in each group are shown in Table 1.

TABLE 1

| Ischem Group    | 1<br>High Perfusion | 2<br>Medium Perfusion | 3<br>Low Perfusion | 4<br>Normal |
|-----------------|---------------------|-----------------------|--------------------|-------------|
| No. of patients | 17                  | 6                     | 5                  | 4           |
| %               | 56                  | 19                    | 16                 | 13          |

Frequency of the various clinical symptoms and signs in all 30 patients is presented in Table II.

TABLE II

| Clinical Findings | Cough | Shortness of Breath | Diaphoretic | Weakness | Headache | Phos. Pain | Tachycardia | Swallowing | Chest Pain | Q-T or T-wave Abnormality | Q-T or ST Segment Abnormality | Postoperative Bleed | MI/MI Suspect | History of Previous Heart Attack | Chest Perfusion After Op. | Q-T Abnormality |
|-------------------|-------|---------------------|-------------|----------|----------|------------|-------------|------------|------------|---------------------------|-------------------------------|---------------------|---------------|----------------------------------|---------------------------|-----------------|
| No. of patients   | 4     | 11                  | 6           | 1        | 23       | 6          | 4           | 4          | 4          | 15                        | 7                             | 6                   | 0             | 0                                | 4                         | 8               |
| %                 | 13    | 37                  | 20          | 3        | 77       | 20         | 13          | 13         | 13         | 50                        | 23                            | 20                  | 0             | 0                                | 13                        | 27              |

Plethora pain was the most frequent symptom and occurred in 75 per cent of cases. Other major clinical features were deep venous distention (DVT) (56 per cent), shortness of breath (SOB) or dyspnea (43 per cent) and incoherence (30 per cent). Of the three major findings, a plethora pain, DVT, SOB or dyspnea, five patients (16 per cent) exhibited; all three (17 patients (56 per cent)) had plethora pain and DVT; 10 patients (33 per cent) had plethora, pain and SOB or dyspnea; and five patients (16 per cent) had SOB or dyspnea and DVT. Radiological abnormalities were seen in seven patients (23 per cent). Four of whom were reported as having changes suggestive of pulmonary such as consolidation effusions and dilatation of hilar vessels, and three as having inflammatory changes. Electrocardiograph findings suggestive of right heart strain, right ventricular hypertrophy or non-specific T wave abnormalities were seen in six patients (20 per cent).

The frequency of various laboratory findings predisposing to postoperative embolism is shown in Table III.

TABLE III

| Predisposing Factors | DVT | Congestive Heart Failure | Recent Phlebitis | Chest, Abdominal Pathologically Disturb |
|----------------------|-----|--------------------------|------------------|---|
| No. of patients      | 11  | 2                        | 6                | 1                                       |
| %                    | 36  | 7                        | 19               | 3                                       |

He, with a large accompanying chest tumor shown in Figs 10 and 11. A neoplasm followed by good respiratory state (20 per cent) (congestive cardiac failure not present in 7 per cent of cases) and had been established before diagnosis of pulmonary embolism.

#### Discussion

The most significant finding in this study was that the clinical diagnosis of pulmonary embolism was supported in 52 per cent of cases by the lung scan and only in 23 per cent of cases by radiography. Of the six patients (23 per cent) with normal lung scans, three were scored for each with only one significant clinical finding (DVT), one had two clinical findings and one, three clinical findings. It is therefore clear that the clinical diagnosis could be produced with confidence in the few cases cases only.

It has been shown by Perkins *et al* (1962) that in group 1 (high probability of pulmonary embolism) peripheral (concrete) peripheral defects in the posterior view can be excluded (Fig 2) as these represent segmental embolism which can be verified by lateral scans. Fully one per cent of the patients fell into this category (group 1) and all showed at least peripheral concrete defects in anterior and posterior views.

In patients with chronic obstructive pulmonary disease it is unusual to find perfusion defects exactly confined to anatomical segments. These defects are usually diffuse or patchy and a superimposed embolism can adduce to unexplained under-perfusion from the scan. Similarly pulmonary venous hypertension secondary to congestive cardiac failure or left heart disease can also produce perfusion defects usually in the bases of the lungs. In these cases, diagnosis can be established by pulmonary arteriography (Perkins *et al* 1972). In this study two patients had congestive cardiac failure and one had chronic obstructive pulmonary disease. These were placed in group 3 (low probability of pulmonary embolism).

In conclusion, lung scanning is a simple and sensitive screening procedure for pulmonary embolism, the diagnosis, accuracy of which can be improved if all four views (AP, PA and both laterals) are obtained and the shape and position of the perfusion defects anatomically localized.

#### ACKNOWLEDGEMENT

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## MEDICAL EXPERIENCE IN NUCLEAR SUBMARINES

By D. M. Davies

### SUMMARY

A summary of medical experience gained on long detached patrols by British nuclear submarine medical officers is presented. Comparisons with American experience are made and indications of what the new submarine medical officer may expect to meet in his practice at sea on patrol are given. The picture reflects the good standard of health of the British submariner and the success of the preventive medicine programme.

### Introduction

British Polaris submarines have long carrying out detached patrols for three years and they carry medical officers. First submarines have medical officers for long detached patrols only. It was considered of value to collect and assess the medical experience gained during these patrols with a view to indicating to future submarine medical officers the type of medical problems they can expect to find on their submarines and to providing information for the planning of clinical training programmes for submarine medical officers.

The United States Navy has previously reported medical experiences from its Polaris submarines (White, 1968) and it is interesting to compare some of these findings with experiences in the Royal Navy.

### Methods

Main sources of information were the journals of medical officers and their records of attendance for injury and illness on patrol. The format required by Flag-Officer Submarines for Polaris patrols only had been indicated in order that the development of unusual or abnormal patterns of disease or injury vulnerable to the isolated and sealed environment inherent in such patrols could be detected early (RFA Personnel Research Committee, 1961). Records and journals for twenty-two Polaris patrols and thirty first submarine patrols of similar length were examined. Details of noteworthy cases and of the incidence of some diseases were extracted. The average daily bed attendances are presented in Table V as derived from an analysis of the gross incidence of illness and injury on early British Polaris patrols given by Lambert (1976) in a paper on submarine preventive medicine.

In order to give a true picture of the medical problem to be expected at sea on patrol, only cases occurring under conditions where transferring or landing the patient would have jeopardised the integrity of the patrol are included. While on patrol a submarine must not surface or break radio silence for any purpose and using medical services. Therefore all cases occurring during work-up, transit, or decomm cruises were excluded from the survey. Accidents generally classified as minor including headaches, colds, colds, bruises and abrasions, unless serious enough to warrant a medical officer's attention, are not included in the breakdown of conditions.



### Sample Population Size

The incidence of seasickness (1-4%) at 50 m is a sample of more than four thousand man-days of descent in quarter of a mile on many days. Assuming an average National Health Service general practice to include seven hundred males of a similar age group (Chief Medical Officer of Health, 1965) the total experience studied in the submersive companies with above sea level is probably greater. The experience of the US Navy is reported here to be based on a sample of three million man-days (Wilkes, 1966).

### Findings

There have been no deaths as yet to date on British Polaris patrols. One case has been transferred at sea and two cases on transit to port of arrival. Three other cases are expected on the Tideslip by an aircraft.<sup>2</sup>

TABLE I  
GENERAL SURGICAL AND MEDICINOLOGICAL CASES

| Condition or case                     | No. of Cases | Remarks  |
|---------------------------------------|--------------|--|
| Asphyxia                              | 4            | Not caused successfully by vomiting or sea sickness  |
| Head ache and dizziness due to motion | 4            | Two cases had severe sea sickness  |
| Head ache due to alcohol withdrawal   | 2            | One case of severe gastroenteritis etc.  |
| Brucella                              | 4            |  |
| Brucella-Calf Borne                   | 1            | Isolated and treated   |
| Brucella-Malaria                      | 0            | At sea and diagnosed on company shore and sea treatment. None has been in the other, and the company |
| Brucella-Malaria treated              | 1            |  |
| Brucella-Typhoid                      | 0            | Isolated with sea and positive to treatment  |
| Brucella                              | 1            | Not removed under land sea sickness  |

### Discussion

The emergencies which will be of greatest concern to a Polaris medical officer are death at sea, the need to transfer a patient from the submersive under conditions which would jeopardise the integrity of the patrol and the need to intervene surgically in a bilateral condition. Most Polaris medical officers will be recently qualified and relatively inexperienced in dealing with deaths or injury in the absence of access to advice from patients of greater experience and with only simple technical diagnosis, says. It is important that, in the chemical training given to new submersive medical officers as part of their overall submersive training programme, due emphasis is placed on the management of such emergencies, particularly in the management of surgical emergencies under conditions where no reliable anaesthetic agents can be used. The survey shows that none of these problems has yet faced a British medical officer with the exception of one patient who developed complaints and signs suggestive of acute myeloid leukaemia late on a patrol. In this case, the patient was transferred at sea under conditions which preserved the integrity of the patrol. It is perhaps a reflection of the soundness of the submersive preventive medicine programme recently described by Lambert (1970) that the occurrence of such problems is rare.

A further occurrence of great concern would be an explosive incident, of which one domain which could cause immediate termination of a patrol. The measures taken to prevent such outbreaks are described in a RAN Personnel Research Committee report (1961).



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| Category                         | Code | Rate of Change | Remarks      |
|----------------------------------|------|----------------|--------------|
| Other Services                   | 10   |                |              |
| Transportation and Communication | 4    |                | Not reported |
| Food and Accommodation           | 3    |                | Not reported |
| Health                           | 1    |                |              |
| Education                        | 1    |                |              |
| Finance                          | 10   |                | Not reported |
| Other                            | 10   |                | Not reported |
| Other                            | 4    |                |              |

TABLE 5  
STANDARDIZED BETA AND ATTITUDE-SCORES FOR BELIEFS ABOUT THE WORLD

|   |                             |
|---|-----------------------------|
| <p>Answer choices available due to system of an infinite number</p> <p>a. Answer: Approximately 70%</p> <p>b. Answer: 80%</p> <p>Answer: infinite and infinite number</p> | <p>4</p> <p>80</p> <p>0</p> |
| <p>Total</p>  | <p>84</p>                   |

1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 2680, 26

| Case name       | Case number | Year of onset | Diagnosis  |
|-----------------|-------------|---------------|--|
| Healthy person  | 1           | 2001          | 1. No significant findings<br>2. No evidence of infection<br>3. No evidence of inflammation        |
| Transfused case | 2           | 2001          | 1. Acute myocardial infarction<br>2. Acute myocardial infarction<br>3. Acute myocardial infarction |
|                 | 3           | 2001          | 1. Acute myocardial infarction<br>2. Acute myocardial infarction<br>3. Acute myocardial infarction |
|                 | 4           | 2001          | 1. Acute myocardial infarction<br>2. Acute myocardial infarction<br>3. Acute myocardial infarction |
|                 | 5           | 2001          | 1. Acute myocardial infarction<br>2. Acute myocardial infarction<br>3. Acute myocardial infarction |
|                 | 6           | 2001          | 1. Acute myocardial infarction<br>2. Acute myocardial infarction<br>3. Acute myocardial infarction |
|                 | 7           | 2001          | 1. Acute myocardial infarction<br>2. Acute myocardial infarction<br>3. Acute myocardial infarction |
|                 | 8           | 2001          | 1. Acute myocardial infarction<br>2. Acute myocardial infarction<br>3. Acute myocardial infarction |
|                 | 9           | 2001          | 1. Acute myocardial infarction<br>2. Acute myocardial infarction<br>3. Acute myocardial infarction |
|                 | 10          | 2001          | 1. Acute myocardial infarction<br>2. Acute myocardial infarction<br>3. Acute myocardial infarction |

The last two cases is the public underlying non-vaccine differences, in this case, the polio-vaccine, measles programmes of Great Britain and the United States. In both cases, except at a set of points of positive information, evidence from principal complex caused the majority of the period to be endangered while the cases were transferred and later the whole areas of both countries had to undergo full information, disinfection programmes. This situation is more suitable even to group in a British subcategory because of the full BCG vaccination programme carried out in school children in this country in recent years. A similar programme has not been conducted in the United States, where infection is placed on case discovery by telephone interview and TB vaccine programmes.

Little or no elective major surgery is carried out in British nuclear submarines on patrol and this is a reflection of patrol conditions under which an elective procedure which develops complications could lead to an infinitely available risk to the patrol. This is borne out by American experience. The four cases of appendicitis in British submarines were all treated successfully by conservative methods thanks to the medical effort during their submarine training programme. American experience in this respect is, 31 of 30 cases treated successfully conservatively. It would appear that the best place to develop appendicitis is not whilst in a fixed bilateral surgery is in a Polish submarine on patrol.<sup>2</sup> Two cases of peritonsillar abscess, occurred whilst required repairs and damage were on patrol. Both of these were referred for further treatment during the inter patrol period and yet both occurred on later patrols, one in fact recurring twice.

Influenza has ceased to be a problem in British submarines since Polish crews were designated as a special care group in late 1966 and their communication by influenza vaccine was carried out. It is expected that crews will continue to be vaccinated when influenza epidemics are forecast. A measure of the effectiveness of the vaccine in this can be seen in Table 11 where before vaccination was initiated three outbreaks of influenza occurred on patrol resulting more than 30 cases, while no vaccinated crews only two epidemic waves have occurred. Considerable numbers of cases of gastroenteritis will occur and in the British experience they invariably occur in outbreaks. The routine microbiological examination of all caterings food facilities initiated in 1966 on the recommendation of the RN Personnel Research Committee and the testing of canteens at Sheppa, and Submarine operations by submarine average daily sampling proposed by Lambert (1971) may reduce the incidence of gastroenteritis considerably. All Polish submarines carry microbiological diagnosis kits with full instructions for their use under shipboard conditions (Morris, 1969) but it is apparent from the journals of submarine medical officers that full use is not yet being made of them. The Americans report only 92 cases of gastroenteritis in their sample though two, again they occurred in outbreaks rather than in isolated cases. The incidence of peptic ulcer problems at sea is considerably low considering that the incidence of peptic ulcer in the naval population as a whole is more than twice that of the general main population (Watt, 1971). This low incidence in both the British and American experience reflects the high standards practiced and achieved for submarine personnel selection in both countries.

The incidence of rashes and orthopaedic conditions is much as might be expected under subzero conditions, minor head and hand injuries being common. American Polish medical officers have come to rely their British colleagues under these circumstances, the latter having portable X-ray machine available for diagnosis, while the former have none (Watt, 1969).

The four cases of heat exhaustion noted in Table 15 occurred in the early days of the programme and led to intensive effort being made to improve engine room conditions in British Polish submarines. Experience shows that effective measures have been taken.

Of the dental cases requiring the medical officer's intervention, most were due to loss of fillings. There were four cases of abscess abscess resolution was achieved by conservative means in all but one case where extraction of the offending tooth was carried out. The low incidence of dental problems in sea reflects the expectations, the Navy has always attached to dental fitness and preventive dentistry, particularly in submarines and confirms the confidence for the high level of dental health in Polish submarines possessed by Maylin, Sharpe and Barry (1969).

The average daily sleep attendance figures during a patrol are remarkably stable. The attendance rate generally falls as the patrol proceeds, perhaps indicating the achievement of a general level of neurobiological, emotional and physical stability under the unchanging environmental conditions of the patrol. Such low attendance figures have been collected continuously since the inception of the Polaris programme and correlation of the data with such parameters as gas concentrations, patrol activity and attitudes of medical personnel on individual submarines, provides much interesting information. The Submarine Medicine Section of the Institute of Naval Medicine stands to make this the subject of a later paper which it is hoped will appear in this journal.

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## OUR MAN IN BANGKOK

By George A. R. Gini

His appointment as a medical officer of the Royal Navy to a civilian appointment in Bangkok, Bangkok, in 1961, only seemed to merit explanation. In the summer of 1966 a military medical committee, created by the South East Asia Treaty Organization secret, decided that a medical officer be appointed to the planning office to coordinate and provide the input for planning and output to member nations in the form of medical intelligence.

SEATO grew in 1954 out of the Manila Pact signed by Australia, France, New Zealand, Pakistan, the Philippines, Thailand, United Kingdom, and United States of America. The pact sought to establish a line from the common sense to maintain peace and security in South East Asia and the South West Pacific. Headquarters were established in Bangkok, and in 1967 a new headquarters building was opened by His Majesty the King of Thailand.

### The SEATO Organization

The headquarters divides operationally into two sections: the Military Planning Office headed by officers of all member nations except France. The staff includes a Secretary General with a staff of all member nations. The military plan for defense management, the civil concern themselves with research, non-military propaganda and among other things the definition of political problems of the area.

Each member nation has a national office on the military side with a representative responsible to his commander in chief. On the civil side, the ambassadors of member nations meet regularly to discuss current action on behalf of their respective Governments. In addition foreign ministers and military advisors meet to frame foreign policy and approve, propagate annually, both sides of the organization play a further active role. The military representing civil through multinational military matters on war, funds and in the air and the civil in foreign policy of their country to be used development and in taking advantage by creating conditions in which circumstances will have been agreed.

The first joint military civil medical effort was initiated last year when a group convened to study rural health in the Philippines and Thailand and to make recommendations for creating centers for medical personnel which SEATO might foster. Military involvement in the matter arose from evidence that volunteer civilian medical elements were making considerable standard use of medicine as a weapon. To quote an example: a common disease in a remote corner of Thailand threatened a rural settlement where job includes anti-malaria spraying. The malaria outbreak in an isolated village gave my emergency approach the village community reaction on the methodology of Government control and assistance which is involving in decision-making. A few gifts to create a fall in the malaria incidence can provide a suitable demand for recruitment to the emergency case and where malaria returns they are rewarded. It is then too late to escape their new masters.

The medical staff officer collects medical information of all cases in South East Asia which is then sent out to member nations in the form of a fairly hefty volume called the SEATO

**MILITARY MEDICAL BULLETIN** Apart from the considerable medical information available from American sources, much demand from experience in Vietnam, SEATO is particularly well served by its own original medical research projects.

#### **Medical Research Laboratory**

The SEATO Medical Research Laboratory is in its 10th year. It is situated in Bangkok, is now supported by the United States Army through the Walter Reed Institute and the Thai Government and costs about one million dollars a year. As a measure of the size of the project, the clinical facility treats 1,000 cases a day in numerous diseases and has the largest captive breeding colony of gibbons in the world.

A laboratory session in February, 1971 was attended by more than 150 doctors from all over the world when the status of laboratory studies was seen in perspective. Scarcely any tropical disease of military or real-worldness has not been tackled somehow modestly or modestly. It may include diseases such as dengue, haemorrhagic fever, Japanese encephalitis, malaria and filariasis. Amoebiasis, infectious hepatitis and bacterial dysentery diseases are included in the research program. Recent highlights include the discovery of novel natural human parasites, the *Salmonella* *S. flexneri* and *S. flexneri*. For the first time flies of the family *Leishmanellidae* have been found to be naturally occurring parasites of man. For the first time dengue flies have been captured in transmission of a disease to man. For the first time mice and rats have been found to be reservoirs of any species of *Leishmania* and *Leishmania* infected with *Leishmania* *Leishmania* to man. The treatment of the diseases has been the largely in the small size and difficulty of recovery of the flies.

A new virus called in 1970 to the *Leishmania* has been discovered which may be found to be a major cause of new specific diseases in the area. *Leishmania* having been studied from the beginning, attention is now turning to the common agent. The SEATO Medical Research Laboratory even after so short a period has clearly established its place in the field of tropical disease research.

#### **Cholera Research Laboratory**

The other medical research project is the SEATO Cholera Research Laboratory in Dhaka, East Pakistan. Established at about the same time as the Bangkok Laboratory it was called in Dhaka because cholera was obviously endemic in the region. It is again a one million dollar a year laboratory with funding largely through the American Institute of Health although all member nations contribute. Originally a pure research laboratory, it set up its own units for research purposes with an English nursing wing in 1967, but extended its attention to include treatment as there were the only beds available for this purpose in Dhaka. To study the natural history of the disease, the laboratory established a field station in Matlab, Bangladesh. Key studies from the epidemic disease area of November 1969 show the demographic study alone of 250,000 inhabitants in completely isolated and underdeveloped villages have produced data which promise to overturn established ideas on population problems. The study nature of transport in this area is by speed boat supplied by merchant sailors and in most cases the populations under study had never before seen a boat with a motor and the arrival of the laboratory.

Before it is too late, although there are academic problems yet to be solved, the laboratory has recognized the problem of cholera as one of less significance than influenza. Almost all cases arriving alone at the treatment center have been cured. Those that reach the center early can be cured within 24 hours with oral fluid alone. In a recent epidemic near Chittagong

the life support system, to achieve a further 100 per cent success rate and food opening from a sealed container (which normally set up in a hole).

The difficulties that exist in the operations of the present vaccine and the low hospitalization rate, which is not always possible for us, impedes us to affect a large proportion of the population prior to identification. It is thought that international vaccination requirements are no longer necessary, but not all member nations of WHO have lost the age old dream of a disease which kills by such immediate and devastating debilitation.

#### **Staff Ranks**

Amongst the varied ranks, the medical staff officer is required to organize on a usual meeting of military medical officers of member nations. After the formation of Steering Committees the rotating delegates and observers divide into two committees: one covering broadly clinical work, the other the more administrative subjects. Topics that involved more interest this year were malaria, drug addiction and, as a subject for agreement on standardization, various aspects of medical behaviour evaluation. Whenever possible, standardization agreements are attempted and as far as SEATO is concerned, they are promulgated through SEATACS to ensure that training manuals of all nations will be based on standard practice.

SEATO does a great deal to promote medical education, disseminating information and initiating medical action in parts of the Treaty Area where the military medical service has scarcely begun. Like other SEATO staff officers, the medical staff officer does a certain amount of travelling to research problems and gather information.

Blanket is that, fascinating, frustrating and at times even one may hope to do no more than scratch the surface of problems and culture. But one naval medical officer at least will have been thankful for a most valuable experience and an intense and explosive introduction to international staff work and the operational state.



## DOCTORS AT GREENWICH

By Robert C. Borneman

The Royal Navy Medical Club is a semi-official organization with membership open to medical and dental officers on the active and retired lists of the Royal Navy and the former navy reserve. Its activities include a bi-annual social gathering and dinner held in the Painted Hall of the Royal Naval College at Greenwich, which has several connections with the medical service.

I attended the 1970 dinner with Surgeon Captain John Brothers, formerly Royal Navy exchange medical officer in the Naval Medical Research Institute, Bethesda, and I was impressed both by the historical richness of the naval and royal establishments at Greenwich, and by the presence of commissioned serving in the Royal Navy. This important suburb of London is well known to millions of school children who, although they may not realize what GMT or Zulu Time will know that their own medical passes through Greenwich.

### Palace of Plagues

Driving to the west gate of the college grounds we passed Queen Mary and Catherine, and its outside colonnades at the National Maritime Museum, to the Grand Square, the square's archway led visitors to the Palace of Plagues, since 1429, was put under the patron was that of the good Duke Humphrey—the Duke of Gloucester, brother of Henry V, killed according to Shakespeare in the Tower of London. An overnight guest of the Captain of the College, Captain Charles Henshaw, recently U.S. Defense representative in Washington, we were directed to his quarters in the new or hospital wing of the King Charles Block, which was built in 1848.

The Palace of Plagues (Fig. 1) had been abandoned and engaged by the early Tudors, particularly Henry VIII, but later fell into disrepair and was finally put to rest in the Civil War. Charles I had built for his Queen, Henrietta Maria, a house behind the old Palace and she did survive the war. It had been damaged by larger forces and was the first use of the palladium style in England. The building was put to various uses after the Restoration. For a time, it was the home of the Naval Officers' School of the hospital, a school was part of the National Maritime Museum. Charles II began a magnificent royal residence, on the site of the old Palace, but his money and energy ran out when only half of the intended square had been completed.

### The Royal Hospital

In gratitude for the great naval victory of his reign in 1692, William and Mary decided to found a Royal Hospital in Greenwich similar to Chelsea and Gosport. Its charter statutes, among its aims the care of widows, their widows and their children as well as the employment of handicapped men for Sir Christopher Wren the Surveyor General, was almost exclusively responsible for the original plans. The process of building extended from 1696 until 1762. The original chapel was destroyed by fire in 1779 and rebuilt in 1799. Queen Queen Mary had died before its completion, William III made the project a memorial to his late



contaminated. In addition, each prisoner received "coarse feeding" (corn) "twice a week" (which was also received on days not "worked") and "very little" (which was distributed at a dinner). A regulating business and "transmission" operated in each ward, receiving the extra pay of 10 to 20 cents a week, which it distributed.

The prisoners were kept under discipline by a governor of admitted rank, several captains and lieutenants, as well as the surgeons. The Physician of the Hospital was the Senior Physician in the Navy. The rest of the medical staff included a surgeon, six assistants, six druggists, the matron and a company of nurses. Surprisingly, the accommodations for the sick, up to and so limited that an additional building, the Infirmary, now the Detached-Surgeon's Hospital, was built in 1781. Prisoners were punished for drunkenness, theft, selling their valuables, begging outside the gates, keeping partners or smoking anywhere except in the Chain Walk, the underground passage which runs from beneath the Chapel to the Prison Wall. The name is taken from the long-stemmed shaft pipes of the period, such as these still to be seen in the Williamsburg reconstruction. Although the life may be regarded as monotonous and less than desirable, the prisoners seemed to thrive on it. The first 41 had arrived in 1780. Their number had risen to 2,000 by 1784 and to 2,400 by 1800. However, after the end of the Napoleonic Wars, numbers began to decline, and in 1869 it was decided to relocate to one prison and to close the hospital.



Fig. 1. Detached-Surgeon's Hospital, Williamsburg, Va. (The building is the only one left standing of its type.)



Fig. 4. View of the Royal Naval Medical School buildings along the River Thames in London, looking south from the Thames.

#### Christopher Wren

In his design for the hospital Christopher Wren had been directed to preserve the Queen's House and as was Wren's complaint, the hospital was poor, much as it appears today. Looking south from the Thames, one sees the massive buildings of the King Charles and Queen Anne Works separated by a grand square which stretches as far as the two Wren domes and the colonnaded northern corners of the Queen Mary Work (chapels and the King William third of actual Hall). These last two buildings, with their parallel colonnades, complete the square and lead the eye from their dominant domes to the Queen's House (Fig. 4).

The Royal Observatory was also designed by Wren but had been erected earlier in the reign of Charles II. It stood in the context of the Admiralty early in the 19th century and was transferred to Greenwich modern times due to atmospheric conditions near the city. Wren's building on the hill south of the college has been restored and is now a Museum of Astronomy and Navigation (Fig. 5).

#### The College and Medical School

When the hospital was closed, the Admiralty retained the buildings and the present Royal Naval College was introduced there in 1875 as successor to a line of establishments in Portsmouth which date back to 1731. It is under the command of an Admiral, President, contains the features of a war and staff college and runs a number of shorter courses. The Royal Naval Medical School was located here from 1845 until its removal to Aldershot in 1946 although it had been transferred temporarily to Spithead during the war years. The school's emphasis had been towards tropical medicine, hygiene and epidemiology and had won a great deal of research such as that of Dudley and Griffiths. Rutherford on typhoid



Fig. 5. *Spontaneous activity of hippocampal cells in the rat under 100% O<sub>2</sub> breathing.* The left column shows the original traces, the right column shows the averaged traces. The scale bar indicates 100 mV and 10 s.

James and Grace on December 1901. The ship, a new 100-ton, armed tug, was assigned to the duty of patrolling the coast for the maintenance of the peace. Fully decked and fully armed, the ship was the first of its kind in the world. The ship was built by the Royal Naval Dockyard, Portsmouth, and was the first of its kind in the world. The ship was built by the Royal Naval Dockyard, Portsmouth, and was the first of its kind in the world. The ship was built by the Royal Naval Dockyard, Portsmouth, and was the first of its kind in the world.

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That evening, in the words of the poem, 400 members and guests of the Royal Navy Medical Club sat hall-dance followed the Medical Director General (Morale) Surgeon Vice Admiral Beveland, through the Club's Walk. The members of HM Royal Marines 4th, Naval Air Command were playing the traditional opening match in the park outside the Fronted Hall and passed up the main staircase into the 1st Lower Hall. Then the lights of a hundred candles glimmered on polished and rubbed, and illuminated the vast mouth of the walls and ceiling. The chorists and voice groups moved to the door of the Upper Hall where, in 1980, the body of Nelson had lain in state for eight days. However, in the dramatic entrance of the procession moved with great efficiency as under the benign influence of good food and wine, we celebrated to the edge of our careens. The penultimate musical selection, a march specially composed for the Freedom of Gosport ceremony by Surgeon Commander Francis Kennedy was received with enthusiasm and after the songs and speeches, an adjournment to end the evening in convivial mood. By this time, I was grateful for the presence of my bed, certain that my introduction to the medical director of the Royal Navy Medical Club had been the ultimate in courtesy, hospitality and sense of occasion.

## THE ROYAL NAVY MEDICAL CLUB DINNER 1971

The annual dinner of the Royal Navy Medical Club was held at the Princess Hotel, Greenwich College, Greenwich on Friday September 10, 1971.

The President, Surgeon Vice Admiral Sir Eric Southey KBE CB DSO addressed the following speech.

My Rank, My Lords, Distinguished Guests, Members.

It is my honour and privilege to welcome you all most warmly to Greenwich this evening for the annual dinner of the Royal Navy Medical Club.

You might like to know that this club has begun an official century for 40 years and with the exception of the two War periods has most purely enjoyed happy and splendid commemorations such as pots of thought. A sapid calculation on the basis of my main theme that in 40 years we have seen several wars, 40 years of peace, 100,000 small boats and 500,000 boats in of war. So there could not but be to stress the fact that the primary objective of this club was to enjoy good food, good fellowship, to renew old acquaintanceships and to make new friends.

Nevertheless there are no robes against the free discussion of matters of a medical nature; whether they be the perils of alcohol, the hazards of smoking or the importance of the bedside manner.

In the Forum that will be known as the Year of the Committee, there has been such a bumper season. Without any assistance from the Ministry, drug the speaker has inspired and illuminated and now reveals us in all forth. Only a few days ago the Commission Committee visited me. I had reason of reason round the London office door and please patients and hypertension in the corridors of power, still the centre. Fortunately to date we still remain in business in the Empire State Building.

Great apart from these magnificent committees of uncertain guarantee there are two which are of vital importance to the future of the Medical Services of the Forces. Firstly there is the Committee of Inquiry into the Medical Services of the Armed Forces under the distinguished chairmanship of Sir Edmund Leach. Terms of reference are: "to review the arrangements for providing Medical, Dental and Nursing services for the Armed Forces at Home and Abroad for Peace and War in the light of developments in defence policy and to make recommendations." This Committee consists of members of the Royal Colleges as well as representatives of the Department of Health and Social Services, Faculty of Dental Surgeons and the Nursing Service, and will have an Active Service representative as Air Chief Marshal Sir Christopher Fildes-Motter, who is Chief of Personnel and Logistics, Ministry of Defence. Many have well remember the Wootley Committee which reported in 1956 and which had chosen under terms of reference: "Great benefits accrued to us from the Committee in the shape of improved standards of service and increased professional opportunities."

I trust the Complete Committee when a complete in between are your will speak an equally happy conclusion and will help us to fulfil the professional aspirations of our medical personnel while still guarding our primary role of providing efficient medical support for the Armed Forces.

I must apologise to slight anyone over the patient meeting by mentioning that named you "Distinguished." It is possible to carry a good thing too far and ending with gentle admonition. Come what may, this evening will mark the steps of the Forces Medical Services.

for a post-mortem. These services factors which put us just back, finally, the outstanding advice, wisdom and experience of the members of this body. Generally, the answers are not being spelled out for a company.

The other Committee which I would like to refer to briefly is the Armed Forces Advisory Committee on Postgraduate Medical and Dental Education. This Committee is under the direct and energetic direction of Mr Harold Edwards of the Royal College of Surgeons and already has received much ground. It will advise the Secretary of State for Defence on all matters affecting postgraduate training and guide the Medical Departments of the three Services on training programmes. In the light of the rapidly changing face of medicine and the constantly evolving and highly specialized training requirements, this standing committee will go on making its influence. I would like to thank, very sincerely, the Royal College and the Faculty of Dental Surgery for nominating excellent persons to serve as their representatives.

You might like to know of some of the outstanding individual achievements of the year. First of place must go to Petty Officer Medical Assistant Frederick MacLaughlin, on July 3, 1971. Her Majesty the Queen was graciously pleased to award him the George Medal for bravery. While serving with the Royal Marines in Helles, MacLaughlin was standing under fire on exposed positions when he was seriously wounded himself in the face and neck. He carried on treating his patients in hospital for 24 hours before allowing his own injuries to be treated and on the way he devoted the 24 hours to attend to another casualty.

Mr Gilbert Brian Gold Medal was awarded last year to this year there are two available. The Presidents and Councils of the Royal College of Physicians and the Royal College of Surgeons of England have recommended that these medals be awarded to Surgeon Rear-Admiral James Watt for his original work on Popes, Ulcers and the Royal Navy. Also to Surgeon Captain John Ruckles for his underwater research work during his many years' appointment in the United States Naval Medical Research Institute (intermittent) (Naval Research Institute) Bethesda. His name is signed by the Secretary for the US Navy, states that he was among the first scientists who emphasized the potential danger of breathing cold before oxygen treatment at great depths.

Higher qualifications have been gained by a number of Medical Officers. Surgeon Commander Ian Young, Bachelor of Philosophy (Oxford) for his work on Respiratory Physiology. Surgeon Commander John Bonham, Membership of Surgeons in Orthopaedics, with a special prize, Liverpool University. Surgeon Commander Peter Horner, Doctorate of Medicine, Liverpool University, for his published work on Ulcers and Control of (Gastric Acid Secretion) with Exposure to Airborne in Deep-sea Dockyard.

Surgeon Commander James Kelipourish, Membership of Surgery, Edinburgh University for his research and published work on Atrophic Gastritis. With regard, I must add that James Kelipourish has refused previously to take up the appointment of Senior Lecturer in Surgery in Edinburgh University.

Six officers have gained the coveted Membership of the Royal College of Physicians and one officer the Membership of the Royal College of Pathology. One has candidate for the new MR, (Histopathological Medicine) has been successful. A number of Diplomates have been gained in radiology and anaesthetics. It is pleasing to record that Surgeon Captain Geoffrey Watts has been elected a Founder Fellow of the Royal College of Psychiatry.

The appointment of Surgeon Captain John Chell as Professor of Naval Medicine has been approved by the Royal College of Physicians.

All the British Medical Association 1971-72 Competition, out of four gold medals awarded, the R.N. Medical Service performed three for training three. One for the First Aid Unit. One for

1987 film *1917*. His quiet film has potential of great power all right, and perhaps the reason why the National Film Board was won by a French film last year. This is 1917, why for them, it is so detached they who have to do not destroy the hard way. The, about second war was led a film the DeMunnings and Kaituma. This film has several international systems. It tells the message could spark the pyrolytic gases of Cornwall; the moral doctors would be need a lot of reconstruction work in the Plymouth area.

News from the Dental World: It is with regret that I must succed to Surgeon Rear Admiral Purcell going on the retired list after 24 years of magnificent service to the Navy and I know how well all will wish to join me in wishing him a long, happy and active retirement. In his stead I welcome most warmly as Director of Naval Dental Service, Surgeon Rear-Admiral John Hunter, and Mr. Voss the acting Admiral. Before he sailed out to sea that he has obtained approval for the establishment of the Harvey Fletcher prize for Dental Surgeons. This will be on the same basis as the Gilling (Navy Medical for Medical Officers). The same commemorates two officers of distinction. It was that Surgeon Christopher Harvey who in the 1870s brought to the notice of Their Lordships the appalling state of the sailors' teeth and improved on them the need for dental health—something perhaps so, rather late for general today, as officers in the service provided Admiral Fletcher was the Father of the U.S. Naval Dental Branch and when a permanent list of Dental Officers was established by Order in Council in 1920, Surgeon Lieutenant Fletcher was appointed as the Medical Department to undertake the improvement of dental treatment throughout the Navy. He retired as an acting Surgeon Rear Admiral in 1946.

I would like to congratulate Sergeant Lawrence Commander George Ridge who achieved the double on passing the FDS of the Royal College of Surgeons of Edinburgh and of England.

On the International front it is pleasing to report that our close relationships with the US Navy Bureau of Medicine have been most rewarding. A Memorandum of Understanding on doing joint research has been ratified and the first meeting held and in all this the doctors played an important part. Surgeon Commander David Elliott, who is on exchange study duty with the Naval Medical Research Institute, Bethesda, has been made President Elect of the International Undersea Medical Society. IAN doctors attended the International Symposium on Diving Physiology at Monterey, and their proposed new European Chapter of the Undersea Medical Society was enthusiastically received.

That might be unrealistic, however, that RN Westpac Fisher and Plymouth are now providing greatly increased dependent care, facilities for the Navy. The second Sea Lord goes in full blessing to this and he considers such care to be an important factor in producing a healthy and happy family and a sustained order. These hospitals continue to work closely with the RN's major local activities and structures.

A number of exchange specialists appear to be using currency options more heavily than the Fed and Wall Street analysts.

Perhaps I could wrap up by saying that this has been a year of change and turmoil but it has been enlightening by the resulting co-operation between the Browsers and between ourselves and medical authorities at home and abroad.

Thoughts are also extremely dominated by living so many distinguished people in our midst. I would wish to welcome you all individually but as the total exceeds 100 I trust I shall be forgiven for cutting the corners. It gives me the greatest pleasure to welcome Admiral Sir Michael Palliser, Chief of Naval Staff and First Sea Lord. That such a busy man has made time to join the doctors' event is in itself an enormous feat, but then, being a surgeon, he



generally to the unwilling of engaging the Navy on all fronts at the same moment in time. He must be a captain so that during his career he has held high office on all the relevant commands the Navy gives to make. Under the water as Flag Officer Submarines, on the top side as Flag Officer Afloat, based at Command House Fleet, on the air as Command of the aircraft carrier HMS *Ark Royal*, on land both as Assistant to the Chief of Naval Staff and then rapid last year placing the fleet's ships of the fighting ships as Controller of the Navy. This would be called a Full House, and it is good to know that he sometimes takes time off to enjoy himself—the good sailing.

*Professor Lord Renshaw*, President of the Royal College of Physicians, perhaps it would be more correct to say he is the Royal College of Physicians. I would like to publicly congratulate him on his election to a further term of office. I would like to thank him for the wonderful help and guidance he gives the Navy both in the management and in our physicians as individuals.

*Dr Thomas Melrose Bellers*, President of the Royal College of Surgeons. One debt to the Royal College of Surgeons goes back into the mists of time. It has started when they took over the task from the Royal College of physicians providing warlike surgeons for the Royal Navy. Their help today continues to be invaluable. I say the President is to go down to posterity as he has, but we are joined and privileged to have him with us tonight in person.

*Dr John Peel*, President of the British Medical Association. Sir John has recently assumed this office and for the period of time had shared his good wishes go with him. His reputation is that high office and great responsibility have always weighed lightly on his shoulders.

*Professor Sir Norman Adcock*, President of the Royal College of Obstetrics and Gynaecologists. I need hardly remind you that year in the Navy there are some delicate matters where guidance has to be sought from the MCOG and generous help is always forthcoming. Those who left the Navy some years ago may not realise that we are now in the productive business in a considerable way and annually we deliver an irreducible minimum of about 1,000 babies on Malta and Gibraltar. Obviously the water does not spend all his time at sea and with that in mind we have plans for an ultra modern 50 bed maternity unit at Haslar. It looks as if we shall shortly be asking Sir Norman for further advice.

*Dr Weston*, President of the Royal College of General Practitioners. I would like to congratulate him on his election and to wish him success during his term of duty. Those who are familiar with his published work and with his deep interest in the value of epidemiological research in General Practice will know how fortunate the College is to have him. I again declare a vested interest here for a close liaison with the RCGP is essential the Royal Navy is to fulfil the new Postgraduate Training Programme and it is essential a professionally rewarding career for the General Practitioner.

*Professor Sir Maclay Miles*, President of the Royal Society of Medicine. It has given great pleasure to all doctors thinking they are specialists or generalists as members of the Armed Forces that Sir Maclay, with his wisdom and learning and international status, has accepted this responsible international chair. He is the outward and visible sign that medicine is not totally fragmented and we wish him a happy term of office.

*Mr Stone*, President of the British Dental Association. Before election to his present high office Mr Stone has had great experience of the hazards of Presidency and the vagaries of the human race. His activities and appointments include First President of the new Middlesex Branch of the BDA in 1951, member of the General Dental Council, Justice of the Peace, Visiting Magistrate at Westminster Sunday Prison, and Commissioner of Inland Revenue. I feel he is well fitted to cope with all the problems of office.

*Professor F. de la Ysa, DSc, Faculty of Dental Surgery, Royal College of Surgeons, The Prince Cook, served in the Navy during the War and we are very pleased to have him back with us once again.*

*Dr Tylleskuer, Deputy Chief Medical Officer, Department of Health and Social Security. This is a famous name in the world of Psychiatry and Dr Tylleskuer is now rapidly establishing his father in a different sphere—the important field of medical administration. I would like to acknowledge our great debt to the National Health Service for their co-operation and assistance.*

*Our guests tonight include the Mayor of Gosport, Councillor Kerton. I would like to say how good it is to see him here, but you will remember that last autumn the R.N. Medical Service had the unique honour of being presented with the Freedom of the Borough of Gosport.*

*We are very pleased the decision was made to provide a beaming, efficient and an element of restraint. I refer to the Right Hon. Margaret G. Connors, Principal Roman Catholic Chaplain Royal Navy. Since G. Connors took his oath and his beaming influence on all of us regardless of hours of demonstration. He is a man of action and those who have been long at the coal face whether with the sick in hospital or leading troops on the troops at sea, will know why he is held in such high regard in the Navy.*

*I would now like to welcome our colleagues in the Armed Forces. Air Marshal Billy Dwyer, General Medical Services of the Royal Air Force, Chairman of St Andrew's University. They tell me it is not unusual to be a lion to match the tag of the R.N. fiddler—this is just a happy and continuing coincidence. We all congratulate him on his promotion and wish him success. On a personal level I would like to say what a great pleasure it is to work closely with Nick Soley.*

*Major General David Comins, R.N.M.C. College, Millbank. General Baird only returned office at Millbank a few days ago. Already he looks happy in his work. His appointment gives great pleasure to his many friends in the Navy.*

*Also a warm welcome to our old friends whom we are so glad to have with us again. I refer to Major General Robinson, Director Army Dental Services and Dr Peter Meredith-Smith, Director Dental Services (RAF).*

*I have a message from a missing guest, Captain Wren, Royal Naval Reserve, Captain, HMS *Precedent*. He greatly regrets not being here and he would like you to know that while you are enjoying yourselves he is logging the English Channel in command of 11 mine sweepers.*

*The Reserve is certainly very active. In the medical world also we receive splendid support and the quality and maintenance of this support is a tremendous and commendable bond to the R.N. Medical Service.*

*Why I say on behalf of us all how much we cherish the privilege of being permitted to use the Palace Hall for our Annual Dinner and what a pleasure it is to have the Admiral President, Rear Admiral Lucas with us tonight. Our grateful thanks go to the authorities of Gosport for their splendid help and to the staff for dealing so admirably and efficiently with our various needs. We are very pleased to have with us Captain Humeau, Captain of the College, Commander Sheehan, Commander of the College, Lieutenant Commander Hoard, First Lieutenant the Hon. H. Endicott, Chaplain, Lieutenant Commander Ruffy, Mess Manager. The Royal Warrant Band has given us great pleasure and I propose to pass your thanks to the Director, R.N. School of Music, for making their presence possible.*

*This evening we are very honoured by having as our principal guest, Air Force Vice Member of Parliament, Sir Jeffrey Hadden, Parliamentary Under-Secretary of State for Defence for the*

Royal Navy. Mr Kirk, in spite of his youthfulness, has already had a very full, exciting and rewarding career. It would appear that he was first introduced into a political career when President of the Oxford Union in 1949. After reading History there was an excellent gap period, during which he played hardball into the tough and exciting world of journalism. First in Glasgow and then in London and the United States of America. But his Gap caught up with him and at the tender age of 22 he blazed his way into politics as the member of the Grosvenor division of Kent. As an organisation with a special interest in and deep understanding of Foreign Affairs, it is appropriate that he should be in high places as we meet on the basis of Membership of the Entomists Club. I think you should know that he was United Kingdom delegate to the Council of Europe from 1946-1947 and Chairman of the Non-Proliferated Nations Committee 1959-1962. There is one facet of Mr Kirk's brilliant political career which I must reveal: he was Parliamentary Under-Secretary of State for the Army for the period April-October 1964 and my only comment on the Army's loss is our gain. I note with interest that his main hobby is mountain climbing: may he scale the highest peaks on behalf of the Navy and get there a little before the others.

## OPERATION BURLAP

By E. J. Grant

As the helicopter floated in very low altitude, the brown wings of the Ganges, a delicate southern, and then below us was the Ganges delta. A silver capsule, benign of us, swept glided against the vast expanse of rice paddy, the densest rows of rice seed stems for the harvest, designed by the idealized plan of the sowing job. The farmers was guaranteed by a succession of loosed ropes of the leaves of rice farmers, reddish wooden fence, long fourth gate, some turned poles area, a square pond, an easily built dyke with broken stone and there a boat, high and dry in the middle of the paddy. In front, the waterway where it had been picked up and like a leaf swept along on a wave of dominance (Fig. 1).

In one or two hours, the bright light of a line glowed on the fading light or a sparkling drop of water signalled the presence of life within the ancient environment.

### Disaster

On Friday November 11, 1978, a cyclone originating in the Indian Ocean had swept up the Bay of Bengal, creating a 20-foot tidal wave in some instances across the low-lying densely populated Ganges delta, destroying the rice crop, pulverizing houses and dwellings and sweeping a mixed media tide of life and inhumanity to destruction. The accurate situation report was available when, on November 15, Pakistan registered assistance.

### Preparation

HMCS *Triumph*, a 12,000-ton ex-cargo carrier based in Singapore, provides maintenance facilities for the ships of the Far East Fleet and embarked 1,400 tons of relief stores and equipment, mostly in automated electronic units. Operation *Rescue*, as it was called, was quite very real, as the ship's dental officer, I was attached to the medical team. Upwards of 300,000 dual recovery boats were estimated to be in the Bangla area alone. The troops were loaded for the amphibious unit, and all concentrated against cholera, typhoid, malaria and polio.

In the event, local parties were not required. The Pakistan Army had already undertaken the transportation of their job and, although boats were used, most had been washed away and disease was not only among the survivors who were probably already immune to the endemic disease of the area. It was not our own men who were at risk, and we were stationed in the supervision of the progress of the working parties ashore.

### Operations

Because of the shallow delta waters, the task group of *Triumph*, the amphibious search ship *Amphipol* and the logistic landing ship *Le Galois*, anchored 27 miles offshore, while the survey vessel *Merula* charted the shallow waters.

A forward control and logistics base was established at Purnabhadra, a small township 60 miles north of the amphibious beach, which was supplied from *Triumph* by helicopter and by landing craft from *Amphipol*. These boats, manned by Royal Marines, had a hazardous 17-hour journey each way and made many such trips (Figs 2 and 3).



Fig. 1. A small jet<sup>1</sup> took 'Dumbo' Duke after the crash.



Fig. 2. Sikorski helicopter of RFL based at Sumbawa in a brief descent to take off pilot.

From Palembang the supplies were distributed to the hospital for varying sizes and brands by a small armada of rubber boats and rough craft. Additional stores were airdropped daily by Hercules aircraft from RAF Changi.

#### Palembang

Throughout period I was employed as watchkeeper in Township, a open room with no ceiling, no heating and depths of mud and on Friday November 21 saw efforts to join the medical team at the interim HQ set up by 1st Command Brigade. We landed just after sunset alongside the next square of town which was 440 Naval Air Squadron's forward air base.

The Royal Marines had set up camp inside the walled compound of Citraat Hermal, a particularly impressive government house. The sick bay arrangement had been erected on a spacious and relatively cool balcony for the Chinese was hot and dry though cold at night and nightfall was usually heralded by howling long storms. Mosquitoes were numerous as were problems of hygiene. Water supplies were meagre and a further health hazard was the exposure when sleep slipped into clouds by helicopters and vehicles.

With the commanders were food, distributing men, clothing and medical supplies (Fig 4). A detachment of 19 Field Squadron Royal Engineers was producing portable water and testing and repairing water, bridges and buildings.

The medical team worked on the distribution of medical supplies and cholera vaccine and dealt with a succession of minor ailments - cuts, abrasions and gashes - even to treat all treated with caution and several cases of the latter were evacuated to the ships for treatment and observation. None fortunately developed any more sinister symptoms.

Sergeant Lieutenant Commander (D) Smith from Sumbawa had set up a limited dental facility previously in my arrival. This I maintained and dealt with a few cases of the mild gum disease



Fig. 3. *Provisional Headquarters of the 1st Marine Division*



Fig. 4. *The death of a soldier in the 1st Marine Division*

#### Withdrawal

I was told by an ex-Troop on November 21, and the old *Ni che* was withdrawn from the operation on December 1, our task completed. A vast line of the remainder of the force was re-embarked in *Jeep*s and the *Cat* and returned to *Seaport*. While no statistics are available to show how many lives were saved by Operation *Sealap*, the medical supplies, clothing, food and technical assistance brought to the stricken area prevented a human situation developing into a nightmare.

## MAURITIUS AND THE ROYAL NAVAL HOSPITAL

By John Lawrence-Cohen

## The Island

Mauritius lies between latitudes 18° 58' and 20° 58' south, and longitudes 47° 15' and 51° 48' east of Greenwich. The length north to south is nearly 30 miles, and its breadth east to west is 25 miles. The area of the island is 714 square miles, and three of the bays round the coast 4 square miles, making a total of 720 square miles (460,000 acres). The ground rises to an elongated central plateau, lying roughly north-south, the altitude of which is 1,000 to 1,900 feet above sea level. It is bounded on the north, east and south-west by steep and highish mountain ridges. On the south and south-east it slopes gradually to the sea. The highest mountain peak is 2,711 feet.



Fig. 1. Mauritius

apart from vegetables and fruits unimportant quantities of rice, maize and other root crops.

In relation to its location, Mauritius is overpopulated. The density of population in the towns and in some villages is very large, and exceeds that of some of the most densely populated regions of the world. The population, which is now well over three times what it was a century ago, has increased from 400,000 in 1668 to 807,007 in 1966. Sixty-seven per cent are Indo-Mauritians, 28 per cent are Europeans and Creoles, the latter being mainly French/African descent, 4 per cent are Chinese. The official language is English, but most people speak French or Creole.

The first Europeans to visit the island were the Portuguese in the 16th century. At that time the country was uncolonized although hot and almost ink-flooded. The Dutch made the first settlement in 1668 and named the island Mauritius after their ruler, Prince Maurice of Nassau. It was soon lost; but Tasmann set out in 1642 on his voyage which led to the discovery of Australia. The settlement was abandoned by the Dutch in 1710 and taken over by the French five years later. By 1771 it was ruled by French planters and their African slaves. During the Napoleonic wars, L. B. de France was carried to a naval base and captured by the British in 1810. The British Government abolished slavery in 1833 and recruited Indian labourers to work on the cane fields in place of the slaves and the descendants of slaves.

new consultant (JMB) Social Scientist by two to one. The representatives subsequently agreed to increase the complexity of the votes, and religious groups.

The Royal Navy W/T station, or MRB (Maritime Radio Base) was at this time the main Military Hospital transferred to the Royal Navy. The naval base is adjacent to a small town. Yagoua street runs north-west of Coumpe and 12 miles from Port Louis. It is 1,360 feet above sea level and, therefore, cooler and wetter than the coastal region (Fig. 1).

#### The Royal Naval Hospital

The buildings date from the latter part of the last century, being constructed of wood on made coastal sandstone. There are three blocks: the first comprises the administrative section (laboratory, x-ray patients, department, histology, radio and the dental department (Fig. 2), the second is made up of the operating theatre, females, and children's ward, maternity ward (labour ward, dispensary and rest rooms for locally trained personnel and L.R. staff (Fig. 2) the third contains the physiotherapy department, extensive medical stores, the male ward (surgical section and the X-ray department. There are 24 beds.



Fig. 2. Royal Naval Hospital, Maritime Block, interior building.



Fig. 3. Royal Naval Hospital, Maritime Block, surrounding roads and operating theatre.

Staff consists of: a Surgeon Commander as Medical Officer-in-Charge, a Surgeon Lieutenant-Commander and a Surgeon Lieutenant-Commander (D). Four senior officers, four medical assistants, five x-ray nurses and three locally trained personnel of various grades. Twelve civilian specialists from Mauritius are called when required for consultation (surgery, anaesthetics, obstetrics and gynaecology, radiology, general medicine and pediatrics).

The hospital caters for a number of trained civilian personnel in addition to servicemen and their families and non-trained personnel may be admitted at the discretion of the medical officer-in-charge. Outpatient average 12000 a quarter and provides comprehensive family care comparable to an average general practice in the United Kingdom, with the exception of chronically ill and geriatric patients. Hospital admissions average 125 each quarter and include obstetrics, gynaecology, ENT, general and orthopaedic, surgery, medical and psychiatric cases. Some 15 general practitioners are given each month.

#### Off duty activities

Sailing, swimming, snorkelling and deep diving are popular sports: a golf course, tennis court and tennis courts are available at the Golfhouse Club in Yagoua and there are ball walking, football and hockey for the young in town. Le Club is the most interesting and



uniquely important to the study of the history of the world. The species in the Royal Museum of Natural History (see Appendix II) are listed from 1814 to the present (1970). There are now about 1000 specimens in the collection, of which 2000 are still during the march of the various climate's mostly in the south of the island in the Black River district.

# **Conclusion**

Some 5000 miles from London, in the Marquesas Islands in the Indian Ocean, we found one of the most beautiful scenery in the world, somewhat reminiscent of Tahiti. Mauritius has a charm peculiarly her own with the lovely, spacious, old French buildings of the capital Port Louis, the big open-air atmosphere of the entire capital, the history of the study branches of Grand Rue and La Grande, and the detachment of Champs-Élysées, with its properties surrounded by high bamboo hedges. La Grande Marée and the Royal Naval Hospital make a worth while excursion.

# 'SKUA'D'

By J. V. Holland



Fig. 1. Booby on island.

These birds we had killed around the perimeter of one of the Santa Cruzes, the most northerly group of islands of the Azores (Fig. 1). We had come to do some surveying and also some curious tests, which involved dropping depth-charges over the water and which seemed to do little except break a blizzard of fish-choppers from the dark land onto my back.

Three weeks in the warm sun on land and some not very successful glimpses of land and shore birds in the charts over the ocean from which we had been taking them to make every quarter hour, day and night. By the end of this we were glad to get where to see the night.

The inhabitants of the land had spent some really, only progress, other scattered seabirds, elephant seals and booby research stations. Our aim was to travel across the island and visit a large progress station on the opposite coast. Laden with cameras, thick sweaters and heavy boots, we set off from the shore the water boat to be landed by the first net. There we were greeted by a single king penguin who squatted his upturned beak and there laddled all to meet other landing parties (Fig. 2).

Most of the journey was up a track on the coast with high snow drifts on either side, over hanging and dangerous in these melting conditions. We had already been warned to stay clear of glaciers but this proved to be impossible as when we did have to cross one we did so on top of the rather elephantine bulk of snow. The penguin rocky was concerned with thousands of birds struggling for a perch on the rocks of a small headland. Their revelling here and there was movable and could be diverted, some in the way.

While my friends were happily being chased by two lions on the coast, I set off to take a closer look at the progress. I was late marked by an Atlantic dove, a bird the size of a small dove, with a noticeably curved back (Fig. 1), which seemed to be in front of me, just about to be photographed. I fired my medium telephoto lens in my camera, and set off in pursuit. Before I could form on it the bird flew off, which was rather annoying, so I continued climbing over the rocks to the progress.

I had just formed on a group of the birds when they gave me a flight on the back of my head. I stood up and turned round to ascertain my situation, but no one was there. Then I was hit on the top of the head, harder than mine, and moved to see two other seabirds appear to repeat the attack. I ducked down and tried to hide against the group of penguins, who seemed a little surprised but removed by this intrusion. In this awkward position I stayed. The every time I turned my head one or other of the birds would take off from a rock by rock and fly straight at my eyes, soaring upwards at the last moment to give me another 'hit'.



Fig. 2. Ice floe near St. Lawrence.



Fig. 3. Government building, St. Lawrence.



FIGURE 1. Entrance to the fjord leading to the station.

on the head with a wing. The two of them took it as their task to make these headstrokes, and then returned to the rock to hunch in each corner, obviously about my status. Flaps, wings, and odd sternal inspirations were heard at these but to no avail.

As I considered these in deep thought and in great wonder of their wing, it was approached and closely examined by a shrike-like which is a land bird found both common at the station, and being on wings can get hold of. Eventually I was poked in a frightful and at times painful way with a variety of rather coarse, leaving me to contemplate my fate.

After some minutes the attacks had abated to the occasional force and I gathered my remaining courage and stood up slowly. I found this by trying to imitate a wader and then only moving very slowly. I could get out of the range of the birds and they left me alone. I had to participate the same performance again with another pair of shrikes before reaching the comparative safety of the rest of my party. It seemed that a group of more than one was sufficient to keep the birds busy and none of the others had had my trouble.

The *Anas*, then, is commonly found with colonies of porpoises and loons by swimming off them. Unattended eggs and even the chicks themselves are at risk, and the adult porpoise is attacked when it comes back from the sea to make it impossible to feed its chick in its beak. I suppose the attacks on me had the same end in view, but I think careful manœver would have given me full enjoyment since it took

We managed to return without further incident, surrounded by birds, seals or arachnids. We strode across crevassed glaciers and down snow slopes back to the waiting motor boat. We set off this morning to roll our way across Drake's Passage to the Falklands (Fig 4). Two nights ago the *Windward* blew over Haploschek's. The birds, through which I sat equal to my end, imagining the terrible things that could have happened to me on that rocky headland now glad I was that I had not seen that film before we visited the Antarctic.

#### ACKNOWLEDGMENTS

Figure 1 was drawn by Mr H. Gough. This journal of Research Institute of Naval Medicine and Fig 2, 3 and 4 are published by kind permission of the Director of Public Relations CPE.

## Case Report

## A CASE OF FAMILIAL HYPERCHOLESTEROLAEMIA ASSOCIATED WITH XANTHOMA TUBEROSUM MULTIPLEX

By A. C. Chakraverty

## SUMMARY

A case of familial hypercholesterolaemia (Fredrickson Type II—hyperlipoproteinaemia) associated with xanthoma tuberosum multiplex is described. This condition is very unusual even in its typical form. The clinical presentation and diagnosis are discussed. Confusion with foreign bodies which caused the complaint

## CASE REPORT

## History

A 34-year-old married Chinese school physical training instructor was referred for orthopaedic opinion with a long history of multiple painful swellings in her hands, elbows, hips, knees and heels. Her complaint was predominantly constant in nature although the swellings in the hands produced some discomfort especially on wearing gloves. The swellings had been present for as long as the patient could remember, increasing in size only very slowly and remaining apparently stationary during the preceding five years. A swelling behind the right elbow had been removed ten years previously in Singapore and post-operatively the wound had discharged a yellowish material for a few weeks. The patient said that her brother had similar swellings in the elbows, knees and heels, and she thought that her mother (now aged 85) had swellings behind her elbows, but feared that from coronary artery disease in the age of 75.

## Clinical Examination

The patient appeared to be a fit woman. She was neither anaemic nor jaundiced and there was no oedema nor lymphadenopathy. No abnormality was detected in the cardiovascular system and the blood pressure was 110/70 mm Hg. Neck, liver, spleen and lungs were unremarkable. Examination was negative. Ophthalmological examination showed no xanthelasma deposits on the conjunctivae.

The sites and nature of the swellings were as follows (Fig. 1).

**Hands:** discrete firm nodular swellings (average diameter 1.5 cm) in the anterior window of both index, middle and ring fingers at the level of the knuckles, which did not resist movement; these swellings were not tender but were adherent to the skin, which was normal in colour.

**Elbows and Knees:** three tender discrete nodules (5 cm group, diameter 2 cm) behind each olecranon and on each infrapatellar region (full joint movement being preserved).

**Heels:** two soft flaccid swellings on the left heel, one posteromedial and the other medial (Fig. 2); these swellings appeared to be lipomas. In addition there were two very small areas of induration, one on each heel.

**Hips:** the distal halves of the Achilles tendons thickened and indurated with a large nodule, firm and rounded, swelling (3.5 cm in diameter) opposite the level of insertion of each tendon (Fig. 3).

### Investigation

A tips of the allantoic ducts showed soft tissue swellings, but no bony lesion. Chest X-ray was normal. Haemoglobin and blood count parameters were within normal limits. FGL—15 mm/hr. Serum uric acid— $4.5 \text{ mg } \%$ , Serum cholesterol— $400 \text{ mg } \%$ , (Normal 100–200  $\text{mg } \%$ ), Serum tri glyceride— $110 \text{ mg } \%$ , (Normal <250  $\text{mg } \%$ ).

Electrophoresis of lipoproteins demonstrated an increase in the low density lipoproteins.

### Diagnosis

This presented quite differently in view of the typical nature and distribution of the swellings and the presence of a positive family history. It was confirmed by a raised serum cholesterol, increase in lipoproteins, a normal value of serum tri glyceride and by biopsy. Other causes of hypercholesterolaemia, eg. hypothyroidism, nephrotic syndrome, diabetes mellitus and obstructive jaundice, could be confidently ruled out.

### Operation

This was carried out primarily for cosmetic reasons, as the patients requested. Only the larger of the swellings behind each heel and the polliculated swelling on the left breast were removed. The swellings were found to be densely adherent to the skin at both sites, each comprising homogeneous yellow masses without any encapsulation. Each tendo Achillis was partly replaced by the mass and complete removal was not feasible owing to inability to lift the deeper layers of the heel or the foot. The breast swelling which clearly resembled a lipoma eventually proved to be a subcutaneous neurofibrous deposit.



Fig. 1. The nodular swellings on the tendo Achillis, the lipoma-like cysts and the breast neurofibroma.



Fig. 1. The discoloration on the back. This is a common feature of the period of the early stage of the disease.



Fig. 2. (1) Swelling of the ankles and feet in the early stage.



### Case 11: Report

*One irregular piece of villi with fibrous tissue excised from the tissue of the villi from the largest measuring 3 × 2.1 cm approximately. Also villi with a moderate piece of villi. Fibrous tissue excised is than the largest measuring 3 × 2.9. 1 × cm approximately. Absence of both for cholesterol on the surface of villi and this are deep) and cholesterol crystals in some villi. The villi are composed of fibrous tissue increased with numerous foamy cells. Some giant cells of the villi are present.*

### DISCUSSION

Xanthomas are yellowish tumours and were first described by Addison and Gull in 1831. Until about three decades ago the accumulation of lipids in tissues was regarded as a secondary in the villi rather as a local phenomenon or as a part of generalized abnormality of the reticuloendothelial system. The fact that xanthomas may result from defects in lipid metabolism was first recognized by Thannhauser and Blagoderz (1933) who observed hypophosphatidemia in association with xanthelasma palpebrarum and xanthoma tuberosum multiplex.

Much work has gone into the study of lipid metabolism and related disorders in the last decade, the term 'lipoprotein' being used for the various lipids in combination with plasma proteins. By virtue of their different densities and chemical changes three lipoproteins have been separated briefly speaking into three types, namely the  $\alpha$ -lipoprotein (high density), the  $\beta$ -lipoprotein (low density) and the pre- $\beta$ -lipoprotein (very low density). The term 'hyperlipoproteinemia' is now frequently instead of the term 'hyperlipemia' because it has been realized that the composition of the various lipoproteins remains relatively constant, that an increase in the concentration of plasma lipids is the result of an increase in the concentration of different lipoprotein molecules rather than any change in their composition. Five groups of lipoproteins were distinguished by paper electrophoresis, and this classification was fully published by Fredrickson, Levy and Lees (1967). Berglund, Anderson and Sanner (1961) also described five groups of lipoproteins by the ultracentrifuge technique. The classification differs in some aspects to that of Fredrickson. Recently the technique of xanthoma biopsy and xanthoma cryofixation (Havel and Kane, 1967; Berglund, Anderson and Sanner, 1967) has been increasingly used in classifying the lipoprotein molecules of defective cases.

The application of Fredrickson's classification to the clinical picture enables the physician not only to correlate the biochemical abnormalities to the clinical aspects of the disease but also to select the best form of treatment to treat a particular lipoprotein abnormality.

Polansky, Berg, Hollmann, Quercio Frey and van Cost (1966) observed that the type of xanthomas found in a patient is largely determined by the abnormal lipoprotein pattern in the serum. For instance, whereas Type II lipoproteinemia (Type II Fredrickson) is associated with xanthoma tendinosa, as in 11 out of 12 patients described by de Gennes (1964), hyperpre- $\beta$  lipoproteinemia (Type IV Fredrickson) is found to be associated with a different type of distribution of xanthomas, namely xanthoma eruptiva and xanthoma striata tendinosa. Polansky et al (1966) also emphasized the value of serum triglyceride concentration in this classification, namely: 100 mg/100 ml in Type II and in variant; 100 mg/100 ml in Types I, II, IV and V. Berglund and Williamson (1966) first pointed out that Type II hyperpre- $\beta$  lipoproteinemia (familial hypercholesterolemia) is an inherited disease, being transmitted by a dominant gene and that the xanthomata is always much more severely affected than the hypertriglyceridaemia. Patients with high level of cholesterol frequently give rise to premature atherosclerosis which is obviously noted in Type II and Type III.



## CALCIFIED COMPOSITE ODONTOGENES

By E. S. Stathakis

Two cases are presented of response production, arising in nature of the natural series (supernumerary) formations.

Generally these odontogenes have no resemblance to the shape of a tooth, and possibly originate from the epithelial cells of a persistent portion of the dental lamina (Hackett, 1971) causing the odontogenic epithelium to lose the capacity to differentiate as necessary for tooth formation, although it retains the ability to initiate morphological differentiation necessary for the formation of a mineralized mass of dental tissue which is laid down in an apposed and implanted manner. At the same time, some of the odontogenic epithelium may still be able to differentiate, to form dentin-like. Hackett (1971) suggests that it is an inhibitory factor in the epithelial cells of the persistent dental lamina which engenders these odontogenes. Usually the incisors are surrounded by a capsule and like teeth they tend to erupt.

In the second of the cases presented, suppurative dentin-like mass was observed, and the small irregular pieces erupt from the mass mass may have been detached from it on removal. In both cases the tendency to erupt has ceased. In case, damage to the apical of erupted tooth and, in the other, dissipated an overgrowth of amelium on the root of an adjacent tooth. It was the result of the death of the tooth which eventually brought the material to notice.

### Case Reports

**Case 1.** The patient (age 26) was referred to Royal Naval Hospital. On examination a hard swelling locally was seen and felt from 2 to 4. It was painless, indurated and of mixed colour.

Röntg (Fig 1) showed an irregular mass which appeared to be encapsulated in close relation



Fig 1. Case 1. Radiograph showing a mixed density odontogene.



Fig 2. Case 1. Clinical photograph showing a mixed density odontogene.

to 3) unroofed 4 and swelling 5 (Fig. 3). Swelling 6 and 4 was unroofed. The tumour appeared as in Fig. 4 and 5 (a).

The patient was admitted to hospital. Under subcutaneous anesthesia and penicillin cover a buccal flap was raised and the very thin lining removed to reveal the upper tumour mass of confluent hard tissue. The soft tissue surrounding the growth was excised and there was no definite capsule. The tumour, with many separate nodules, was easily shelled out, exposing the crown of unroofed 4. When 4 was removed (Fig. 5) and the crown of 3 unroofed, the roots of 6 and 7 were seen to be inseparably encased. The unroofed crown was removed when it was deemed due to relieve the damaged osseous. The bone was trimmed and the flap closely sutured.

Figure 5 shows the roots and tumour placed in the approximate relative position they were in before removal.

Case 2. The patient (age 10) was referred to Royal Naval Hospital. On examination the area buccal to 4) was sore to the touch, itchy, and very painful. There was a discharging sinus and 2) was absent from the arch. There had been itch for the last three days, four days previously and this was followed by the swelling.

X-ray (Fig. 4) showed 2) unroofed, with a radiopaque mass surrounded by a lucent area between the crowns of 5) and root of 4).



Fig. 4. (Tooth 2) Unroofed but unroofed crown.



Fig. 5. (Tooth 4) Root of tooth 4 unroofed and root of 5).

It was thought that the mass was a composite odontoma, and that 4) was the crown of the swelling. It was planned to remove 5) the tumour and 4) under general anaesthesia, a course of penicillin was started and the patient returned to the dental clinic. Much pain was relieved.

Three days later the patient was admitted to hospital for operation under subcutaneous anaesthesia. Buccal bone was removed to expose the odontoma, which was elevated slowly to come away in separate pieces. The unroofed 5) was not visible, but the roots of 4) were exposed. On removing more bone to find 5) the osseous was exposed. The crown of 5) was deep to the roots of 4) which was expected. The root of 5) lay posteriorly and the tooth was difficult to remove. It was later seen to be fractured and disintegrated. The wound was closed with multiple sutures. Recovery was normal and successful.



[illegible]

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The final meeting in the series of leading operations in oral surgery of leading the IADR conference took place in London.

<sup>1</sup> Includes all 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677,

The authors wish to thank the research grants and the technical assistance, particularly in explanation, by Elizabeth J. Johnson, for the design, data collection and interpretation of these studies in a self-control phase. We thank, especially, the research staff. There is very little in our literature and results that have been. We thank the authors of the book and the research community for their help.

† All group experiments were performed in triplicate and data were averaged. If the observed concordance had to comply with the 1:1 ratio, the concordance  $\chi^2$  would have been significant.

Department of Health and Human Services, Region 1, and Monroe Therapeutic in the hospital setting, and a general release of a "notice of release of confidential records on any other transcripts and this release is irrevocable." 4/17/14

LEARNERS' COUNCIL OFFICE, 30 Jackson Boulevard, Fort Lauderdale, FL 33301, 954/333-7700. ext. 210. (not including 7)

The collection itself is an aptly chosen one of the selected papers. The first 34 pages of material are a very interesting bit of the death of justice in America as evidenced by the

The first chapters deal with various kinds of the representation of knowledge of concrete human activities. It is based on the research results on various fields, and which are the concrete

The entire diagram can be discussed with dimensional analysis. A specific temperature, however, has no dimension. Temperature has units, temperature is a scalar, the whole range of both space and temperature, that is:

Throughout this book emphasis is placed on the use of vector computing for reduction of dimensional complexity in the analysis and synthesis of structural design. The results of this research will be useful to the reader trying to understand structural behavior relating to the internal aspects of structures. A good overview of the Plate-Galerkin approximation is given. This book is for the advanced student, graduate student, researcher.

<sup>1</sup> The 1992-1993 season is the last season for which data are available.

This book is written for the nonmathematician as well as with a special interest in ergonomists, rather than for the generalist biologist.

It must be clear to some extent that even, itself, and a long period is required before the significance of these changes can be related to the behaviour of early locomotion, ecology and cognitive effects with the formation of the cortex.

For further information, a copy of *Forces* Edited by G. L. Collins, Jr. is: 1984, *University and London*  
 P. O. Box 100000, New York, NY 10001

The 1000 reference lines in the composite made of eight sheets in position behind separating foil-photocopies and sheets of the collodion.

None of the statistical parameters appear related to those as are so recommended by the prefilling bodies.

This is a useful guide to the Indian use of wood (Gill, 1992) and an excellent supplementary tool from a good model for the study of conservation to enhance the results of sustainable certified woodlands.

<sup>1</sup> *Yeast* Baccus 1000, Ardenne, 1976. Edited by Jacques F. Colquhoun. 640 pp. \$18.00. Yarrow Press, Medical Publications.

Chicago: University of U.S. East Asia Policy & News Ltd. (1998).  
 URL: <http://www.us-east-asia-policy.com>

The author is a very well-known and distinguished scholar, literary and religious, and considered in his field. He is also a highly influential figure in the world of letters and is a member of the Académie Française.

Fig. 1 shows that page 1, the only page printed in reverse, is the only page that does supply the needed  $\pi$  to  $\beta$  (because of the way in which the original text is

<sup>1</sup> The authors are grateful to the referees for their helpful comments and suggestions.

Y. Liu, R. Li, and J. Liang, eds., 1996. Edited by John T. Grayhawk. MIT. Pp. 444. *Neural Network Prediction: Applications in Finance, Engineering, and Management*. Boston: MIT Press. \$49.95.

<sup>a</sup> The mean  $\pm$  standard deviation of the 1000 bootstrap samples of the integrated variance of the past year. With the bootstrap method, the variance of integrated variance that would be larger than that of the previous year has a probability of 0.05.

This type of food processing is by no means new. In traditional starch and oil markets in a rural

As it turns out, it is still largely difficult to keep fully up to date with complex literature, the most useful of current studies are those, as already suggested in recent reviews (Lewinsohn et al., 2000), that focus on the treatment of children and adolescents.







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[illegible][illegible]

The structure of nitrogen atoms bonded three, coordinate, undistorted, of the 1,3,5,7- $\text{C}_4\text{H}_4\text{N}_4$  molecule. The undistorted structure is previously reported in the literature, simply as the same as three nitrogen atoms bonded three-coordinate and perpendicular to each other, are also a coordinate structure. The range is to determine nitrogen from the two isopropyl, 1,3,5,7- $\text{C}_4\text{H}_4\text{N}_4$  in the literature, is 1.000000 and 1.000000, respectively, is 0.000000.

As proposed in [1], *Strong* implies an *if* property as recommended in [Lorenz, cited in] in the definition of *strong* that *Strong*. The need of self-protection on computers, the self-deception and a more explicit *strong* is obvious: you propose that you will become *strong* without making for the weakest method up on the subject for *Strong*, even if you all the *strong* and a great deal of evidence is obvious. [1, 1]

© 2004 Blackwell Publishing Ltd *Journal of Internal Medicine* 255: 111–119

As these papers of the 1970s suggest, the issue addressed by "recovery" in the Massachusetts courts is quite different from that which was addressed by the Supreme Court in *Estelle*. The Supreme Court's decision in *Estelle* was based on the fact that the average prison inmate is not afforded the opportunity to receive medical care. The Supreme Court's decision in *Estelle* was based on the fact that the average prison inmate is not afforded the opportunity to receive medical care. The Supreme Court's decision in *Estelle* was based on the fact that the average prison inmate is not afforded the opportunity to receive medical care.

These findings suggest that the use of the *in vitro* model is a promising approach to study the effects of chemical agents on the development of the placenta. The use of this model is particularly useful for the study of the effects of chemical agents on the development of the placenta, as it allows for the study of the effects of chemical agents on the development of the placenta in a controlled environment. The use of this model is particularly useful for the study of the effects of chemical agents on the development of the placenta, as it allows for the study of the effects of chemical agents on the development of the placenta in a controlled environment.

This practical perspective of diagnosis can be readily distinguished from diagnosis essentially for the purpose of medical treatment in less developed (as in all the world) but then this is all too often not the case.

First, any electric power generated when the car is not in motion on the road is being stored, as the battery will not allow electricity to be used until it is necessary to power the car and start, reducing efficiency. It would also be a necessity to power the car and the driving car, some languages from the car and that can be the electricity. The biggest risk would be the car's battery and increasing weight and inefficiency.

100



# RECENT QUALIFICATIONS

Engineer Captain G. A. Kelly—FAC Pass  
 Engineer Commander J. A. Cameron—MBC Pass  
 Engineer Commander N. Lee—MBC Pass  
 Engineer Commander D. R. Morgan—MBC Pass  
 Engineer Lieutenant P. H. Jones—MBC P  
 Engineer Lieutenant D. R. Jones—MBC P  
 Engineer Lieutenant Commander A. M. Morgan—MBC P  
 Engineer Lieutenant Commander C. G. N. Brown—MBC Pass  
 Engineer Lieutenant Commander C. G. N. Brown—F (MBC) and (Fing)  
 Engineer Lieutenant J. H. Brown—F (MBC)  
 Engineer Lieutenant D. J. Williams—F (MBC)  
 Engineer Lieutenant M. J. Smith—F (MBC)  
 Engineer Lieutenant D. R. Smith—F (MBC)  
 Engineer Lieutenant C. G. Smith—F (MBC)  
 Engineer Lieutenant D. R. Smith—F (MBC)

# PROVISIONS

To Supply Lieutenant Commander W. H. A. Fisher—MBC (MBC) and (Fing)  
 D. A. Fisher—MBC (MBC) and (Fing)  
 To Supply Lieutenant Commander C. G. N. Brown—MBC (MBC) and (Fing)  
 To Supply Lieutenant W. H. Brown—MBC (MBC) and (Fing)  
 To Supply Lieutenant W. H. Brown—MBC (MBC) and (Fing)  
 To Supply Lieutenant W. H. Brown—MBC (MBC) and (Fing)  
 To Supply Lieutenant W. H. Brown—MBC (MBC) and (Fing)

# TRANSFERS TO THE PERMANENT LIST

Engineer Lieutenant J. A. Smith—MBC (MBC) and (Fing)

# RECENT

Engineer Lieutenant Commander J. H. Jones—MBC (MBC) and (Fing)

# NEW ENTRIES

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 Engineer Lieutenant W. H. Brown—MBC (MBC) and (Fing)  
 Engineer Lieutenant W. H. Brown—MBC (MBC) and (Fing)

# RETIRED

Engineer Lieutenant C. G. N. Brown—MBC (MBC) and (Fing)  
 Engineer Captain R. H. Jones—MBC (MBC) and (Fing)  
 Engineer Commander J. H. Jones—MBC (MBC) and (Fing)  
 Engineer Commander J. H. Jones—MBC (MBC) and (Fing)

# TRANSFERS TO THE RESERVE SERVICE COMMISSION

Engineer Lieutenant Commander C. M. Williams—MBC (MBC) and (Fing)  
 Engineer Lieutenant C. M. Williams—MBC (MBC) and (Fing)  
 Engineer Lieutenant C. M. Williams—MBC (MBC) and (Fing)  
 Engineer Lieutenant C. M. Williams—MBC (MBC) and (Fing)

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## President

To Washington Lieutenant Commander A. R. Jones  
 To Washington Lieutenant A. R. Jones  
 To Army Headquarters—MBC (MBC) and (Fing)

# QUEEN VICTORIA'S REGIMENT, CANADIAN FORCES

## In Force

Senior Flying Officer: Major M. L. T. Miller, R. F. Hamilton and R. J. Hamilton

## New Force

Major A. Jones, J. Wignall, M. A. Jones, P. C. Jones, J. H. Jones, J. H. Jones, J. H. Jones

# Transferred to the Permanent List

Major J. Jones, Major J. Jones, Major J. Jones  
 Major M. A. Jones, Major J. Jones, Major J. Jones  
 Major M. A. Jones, Major J. Jones, Major J. Jones  
 Major M. A. Jones, Major J. Jones, Major J. Jones

# ROYAL NAVAL RESERVE Presidents

Dr. Guyton Laurence Committee: M. W. J. Morgan, F.R.C.S. (Edin).

Dr. Guyton Laurence Committee: B. W. Pitt has been elected as a Fellow of the Royal College of Physicians of Edinburgh.

## CIVILIAN CONTRIBUTORS TO THE ROYAL NAVY

### Appointments

Chairman of the Board: Professor James Lee Griffiths, MB, FRCS, FRCR.

Chairman of the Board: Sir P. Todd (1971).

Dr. Guyton Laurence Committee: M. J. Morgan, MB, FRCS, FRCR, has been elected as a Fellow of the Royal College of Physicians of Edinburgh. Dr. Morgan has been elected as a Fellow of the Royal College of Physicians of Edinburgh.

Dr. Guyton Laurence Committee: Dr. Morgan has been elected as a Fellow of the Royal College of Physicians of Edinburgh. Dr. Morgan has been elected as a Fellow of the Royal College of Physicians of Edinburgh. Dr. Morgan has been elected as a Fellow of the Royal College of Physicians of Edinburgh.



Dr. Guyton Laurence Committee: J. B. Kellgren, MB, FRCS, FRCR, has been elected as a Fellow of the Royal College of Physicians of Edinburgh. Dr. Kellgren has been elected as a Fellow of the Royal College of Physicians of Edinburgh.

Dr. Guyton Laurence Committee: Dr. Kellgren has been elected as a Fellow of the Royal College of Physicians of Edinburgh. Dr. Kellgren has been elected as a Fellow of the Royal College of Physicians of Edinburgh.

The general affairs of his colleagues accompany him to the (continued)

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